CDA 7 5630

Maintenance Manual

DPS7000/XTA
NOVASCALE 7000

Hardware: CDA

REFERENCE
77 A7 48UU 03

DPS7000/XTA
NOVASCALE 7000
CDA 7 5630
Maintenance Manual

Hardware: CDA

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Trademarks and Acknowledgements

Preface

Scope and Objectives

This manual is part of the documentation set for the CDA 7 family of products.

The CDA 7 is a very reliable high performance Integrated Cached Disk Array (ICDA) designed for online data storage.

This manual describes CDA 7 maintenance and ORU replacement procedures.

Intended Readers

This manual is intended for personnel involved in maintaining and repairing the CDA 7 5330.

Versions of the Product

- For GCOS 7 systems, the CDA 7 5330 subsystem is available with two disk technologies giving two different disk capacities: 9 GB and 18 GB.

  9 GB refers to the formatted disk capacity. This is equivalent to an unformatted disk capacity of 11.5 GB.

  18 GB refers to the formatted disk capacity. This is equivalent to an unformatted disk capacity of 23 GB.

  This manual applies to both the 9 GB and 18 GB disk technologies. However, if a section of text applies only to just one disk technology (9 GB or 18 GB), then this is explicitly stated in the text. If no such indication is given, then the text concerned applies to both the 9 GB and the 18 GB disks.

- CDA 7 5630 is available with 18 GB or 36 GB disk devices.

  18 GB refers to the formatted disk capacity. This is equivalent to an unformatted disk capacity of 23 GB.

  36 GB refers to the formatted disk capacity. This is equivalent to an unformatted disk capacity of 47 GB.

Structure

This manual is structured as follows:

Chapter 1	**Introduction**, provides a overview of the CDA 7 system.
Chapter 2	**About the Lap-Top** shows the place and connections of the Lap-Top in the CDA 7 5330 subsystem.
Chapter 3	**System Repairs**, contains instructions for replacing CDA 7 components.
Chapter 4	**Part Catalog**, provides a list of part numbers to be used when ordering replacement parts for the CDA 7.
Chapter 5	**Add-On/Microcode Upgrade**, describes how to perform add-ons to the CDA 7 subsystem.
Appendix A	**Software Release and CDA 7 Configurations (9 GB Disks)**. This describes how the software release is identified and the outlines the possible CDA 7 subsystem configurations. **Appendix A** applies to systems with **9 GB disks only**.
Appendix B	**Error Report (GCOS 7 PRLOG)**. This contains the channel exeption messages and the information on the cause of this state. **Appendix B** applies both to systems with **9 GB disks and to systems with 18 GB disks**.
Appendix C	**Installing the CDA 7 5330 With Microcode Release 5263**. Release 5263 of the Microcode can run on systems only 9 GB disks only. Therefore, **Appendix C** applies to systems with **9 GB disks only**.
Appendix D	**Software Release and CDA 7 Configurations (18 GB Disks)**. This is the equivalent of Appendix A except that **Appendix D** applies to systems with **18 GB disks only**.
Appendix E	**Installing the CDA 7 5330 With Microcode Release 5264**. Release 5264 of the Microcode can run on systems with either **9 GB disks** or **18 GB disks**.
Appendix F	**Installing the CDA 7 5630 With Microcode Release 5265**. Release 5265 of the Microcode can run on systems with either **18 GB disks** or **36 GB disks**.
Glossary	Defines the terms used in this manual.

Bibliography The following manuals discuss related subjects:

Bull DPS 7000 User's Guide Firmware Release Bulletin *77 A7 67US*
Bull DPS 7000 - System Repair Manual *77 A7 72US*
CDA/x Product Manual *96 A1 70EC*
CDA 7 Maintenance Manual *77 A7 48UU*
CDA 7 5330 Site Preparation *77 A1 97UU*
CDA 7 5330 Product Manual (9 GB) *77 A1 61UP*
CDA 7 5330-23 Product Manual (18 GB) *77 A1 66UP*
CDA 7 5630 Site Preparation *77 A1 70UP*
CDA 7 5630 Product Manual *77 A1 69UP*

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Tables

1. Introduction

This chapter provides an overview of the CDA 7 Integrated Cache Disk Array (ICDA) highlighting its performance and reliability features.

1.1 System Performance

The CDA 7 is a reliable high performance Integrated Cached Disk Array designed for on-line data storage.

CDA 7 (front view)

Figure 1-1 provides a front view of the exterior of the CDA 7.

Figure 1-1. CDA 7 Subsystem

CDA 7 (rear view) - 9 GB

Figure 1-2 provides a rear view of the exterior of the CDA 7 (9 GB).

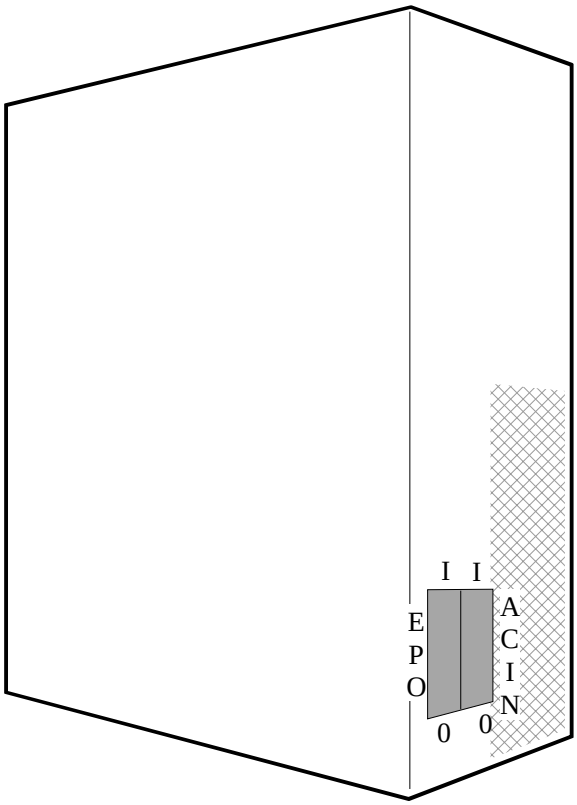


Figure 1-2. CDA 7 (Rear View - 9 GB)

CDA 7 (rear view) - 18 GB and 36 GB

Figure 1-3 provides a rear view of the exterior of the CDA 7 (18 GB and 36 GB).

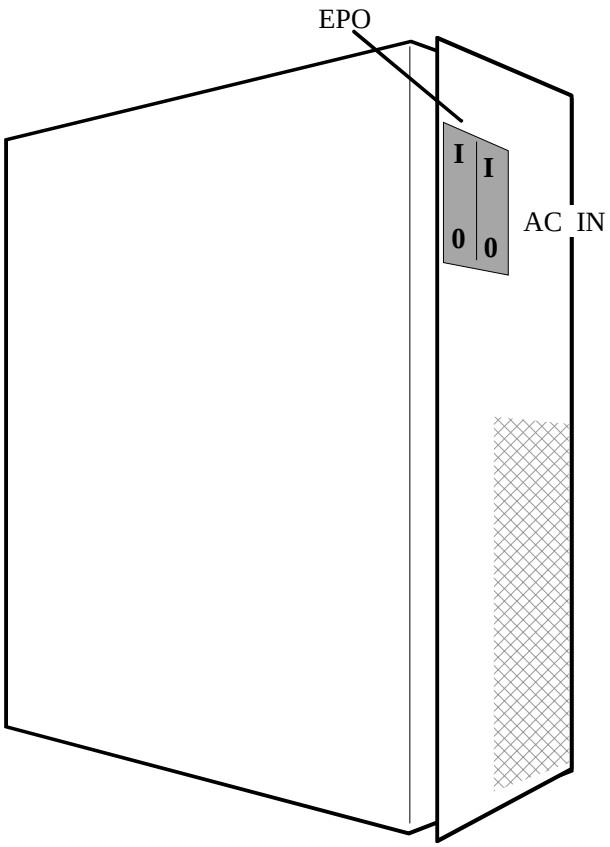


Figure 1-3. CDA 7 (Rear View - 18 GB and 36 GB)

CDA 7 Main Components

Figure 1-4 shows the location of the main components in the CDA 7 chassis.

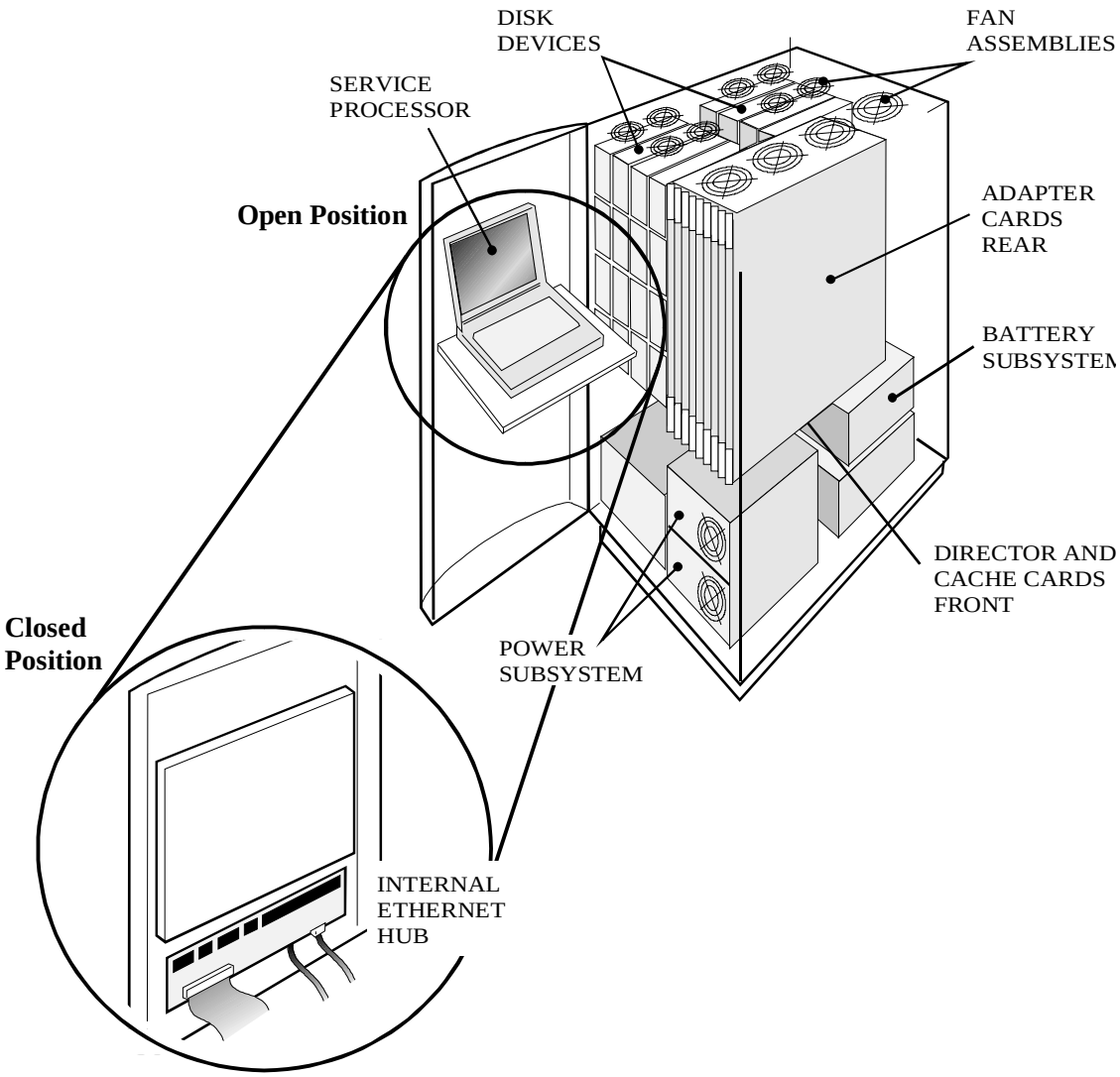


Figure 1-4. CDA 7 Main Components (Exploded View)

1.2 Logical Architecture

Links to the system are established with a Fast-Wide / Ultra SCSI type interface. Director channels and adapter channels are specific to the SCSI interface of the DPS 7000.

IMPORTANT:
The abbreviations used in this document are:

1. Channel Director = **SD** (SCSI Director)
2. Channel Adapter = **SA** (SCSI Adapter for the link with the WSP board).

Interconnection of Main Components

Figure 1-5 shows the interconnection of the main components of the CDA 7.

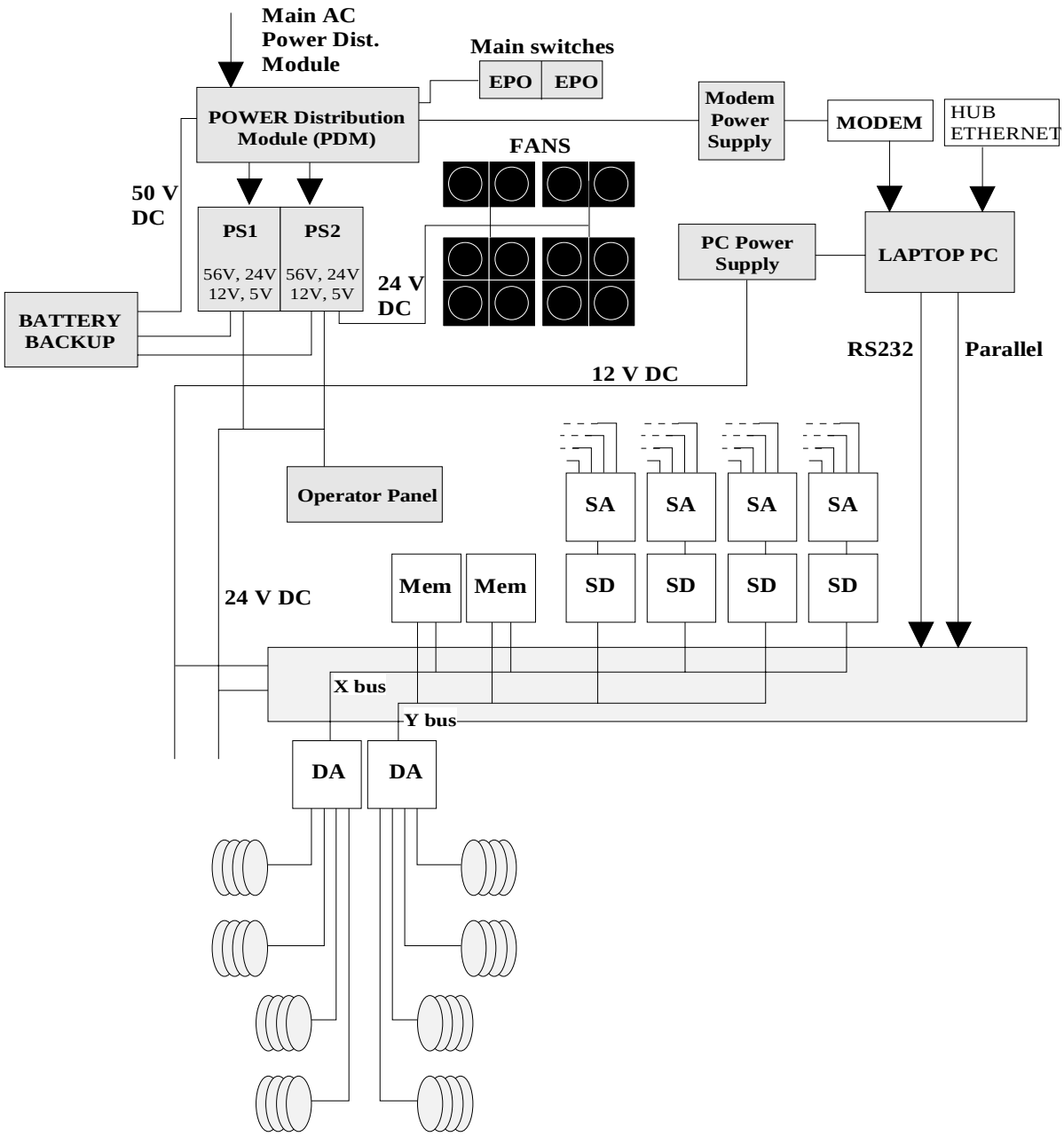


Figure 1-5. Interconnection of Main Components

CDA 7 Front View (covers off)

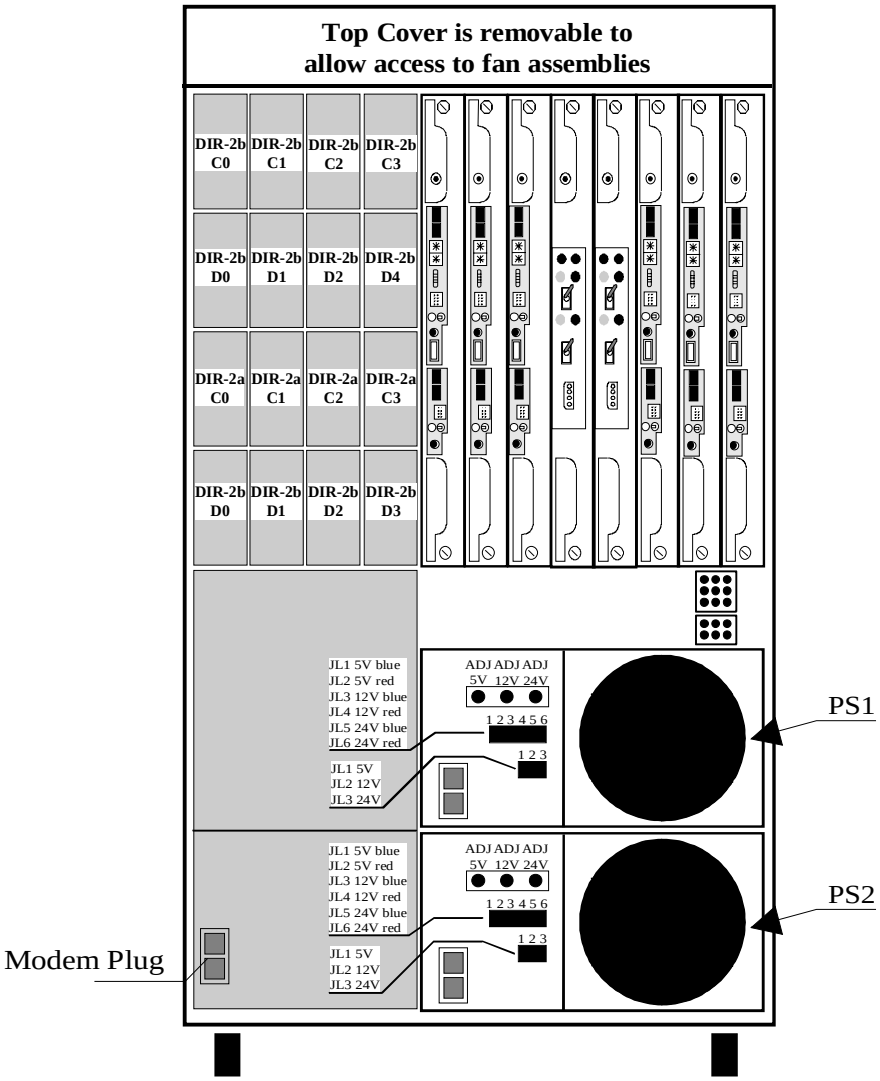


Figure 1-6. CDA 7 Front View (Covers Off)

Disk Director Device

Figures 1-7 and 1-8 provide a front and rear view of the disk director device.

Front View

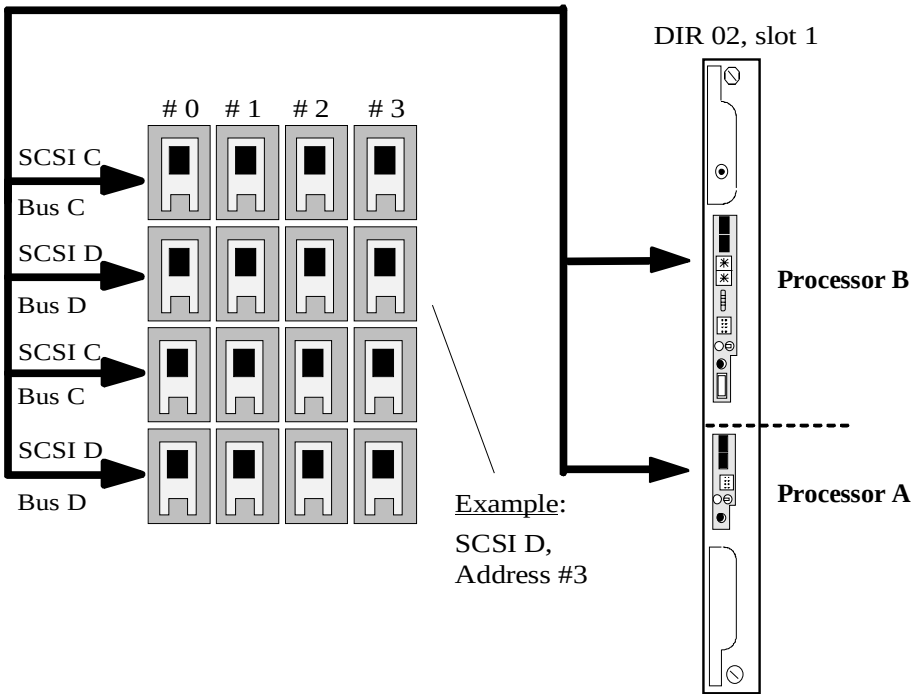


Figure 1-7. Disk Director Device (Front View)

Rear View

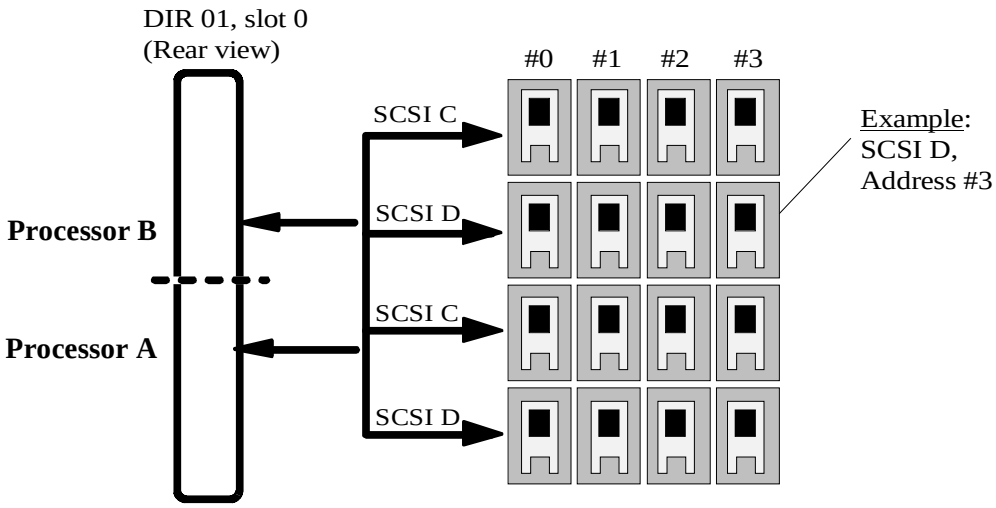


Figure 1-8. Disk Device Director (Rear View)

Front Card Cage - Channel Director Location

Figure 1-9 shows the location of the channel directors in the CDA 7.

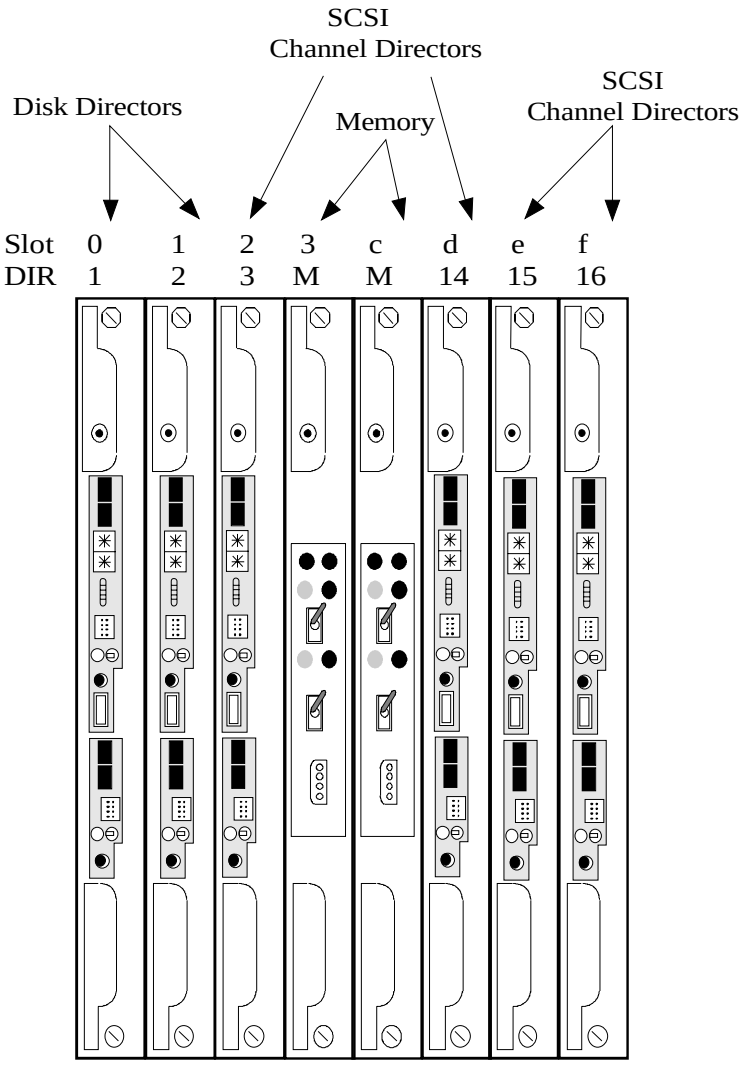


Figure 1-9. Front Card Cage (Location of Channel Director)

Dual Processor Director

Figure 1-10 provides a close-up view of a dual processor director.

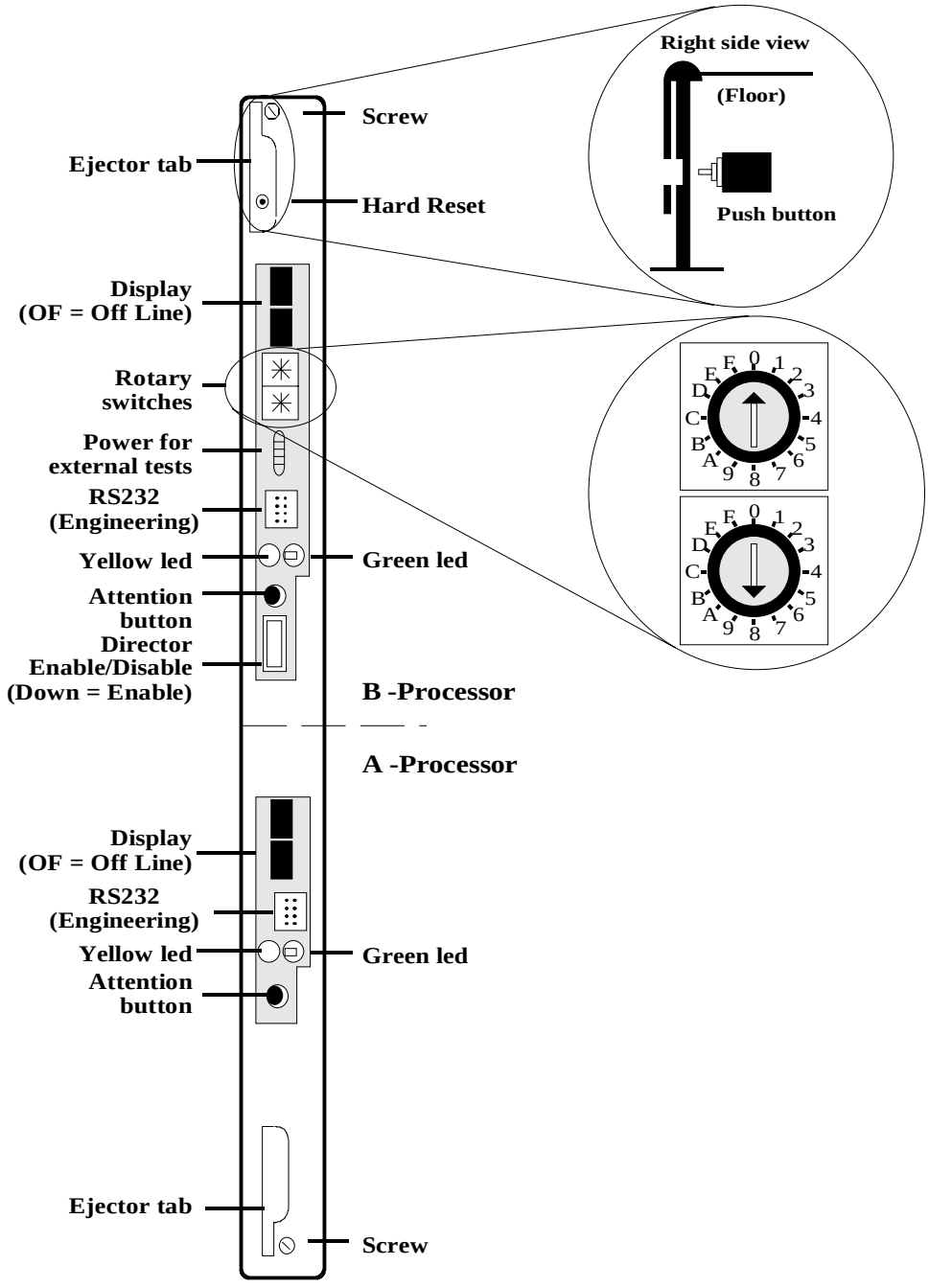


Figure 1-10. Dual Processor Directors

Front Card Cage - Memory Board Location

Refer to the *Front Card Cage* figure above to locate the memory boards in the CDA 7.

Memory Board

Figure 1-11 provides a close-up view of a memory board.

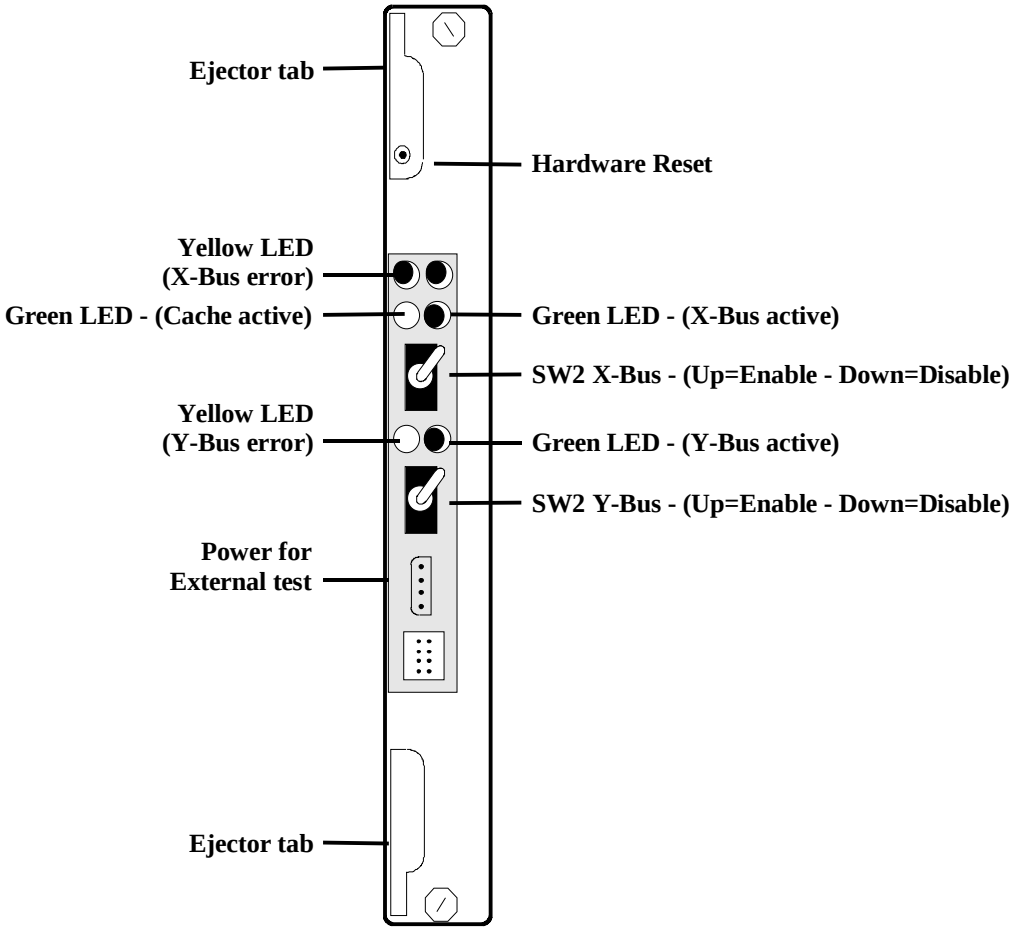


Figure 1-11. Memory Board (Close Up)

CDA 7 Rear View (covers off) - 9 GB Disks

Figure 1-12 provides a rear view of the CDA 7 (9 GB disks).

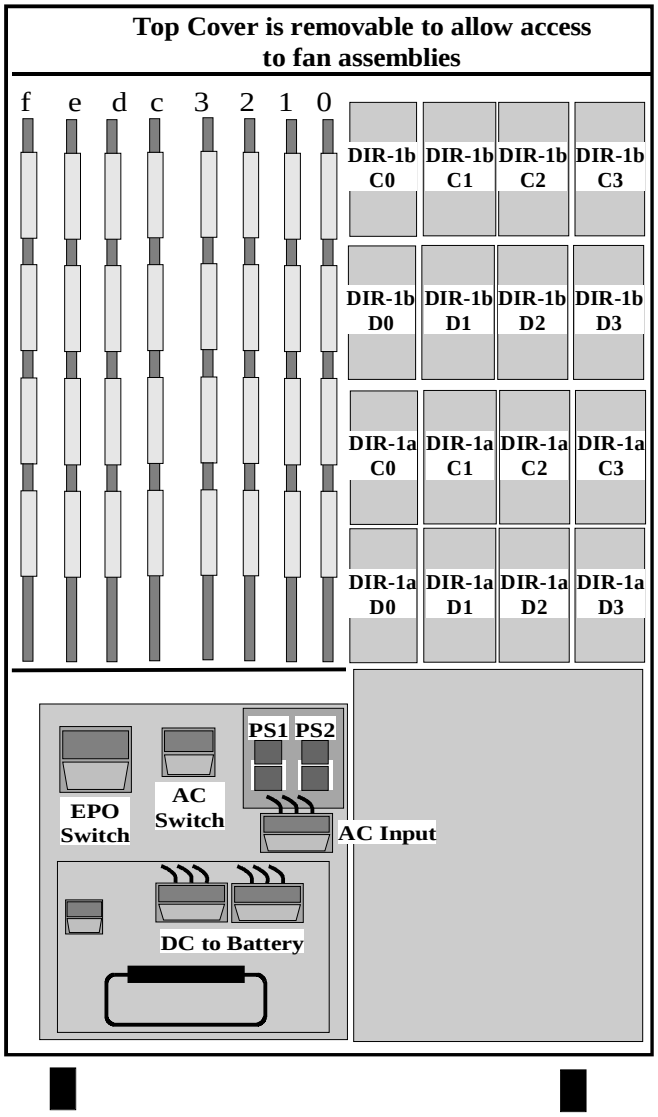


Figure 1-12. CDA 7 Rear View (Covers Off) - 9 GB Disks

CDA 7 Rear View (covers off) - 18 GB Disks and 36GB

Figure 1-13 provides a rear view of the CDA 7 (18 GB Disks).

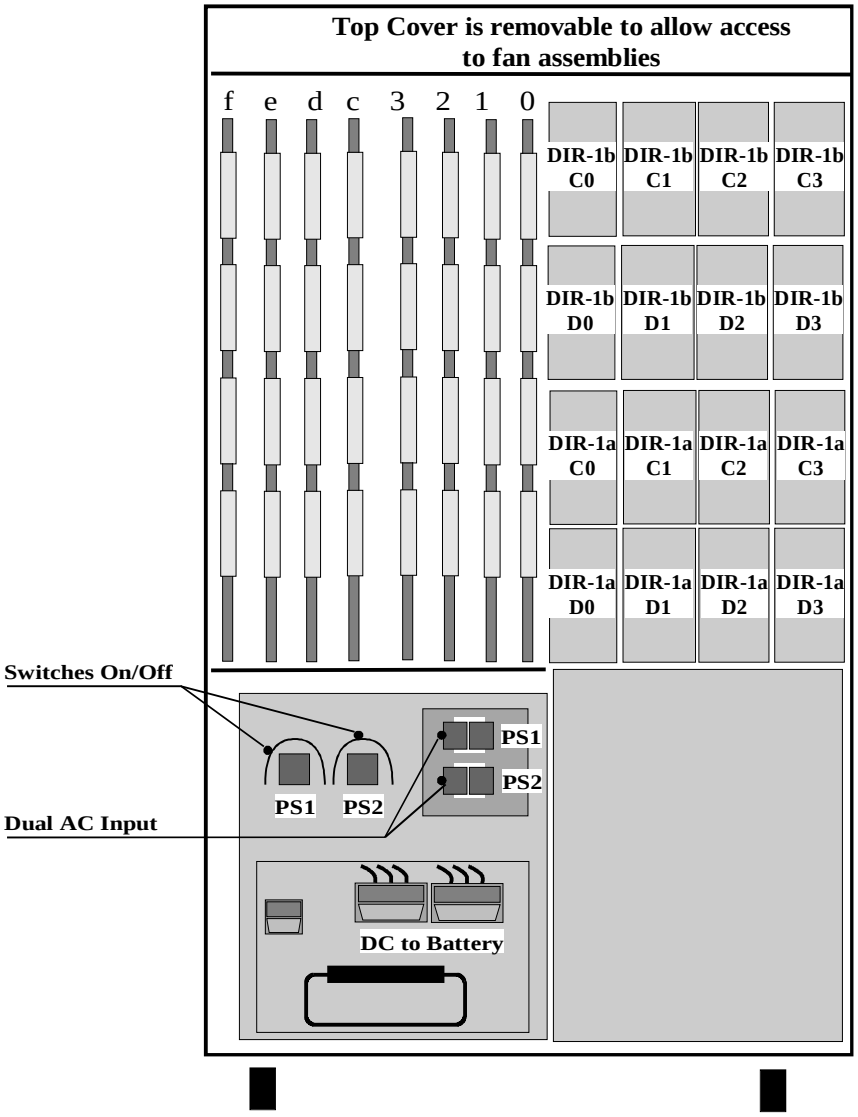


Figure 1-13. CDA 7 Rear View (Covers Off) - 18 GB Disks

Rear Card Cage -SCSI Adapter Location

Figures 1-14 shows the location of the SCSI Adapters in the rear card cage.

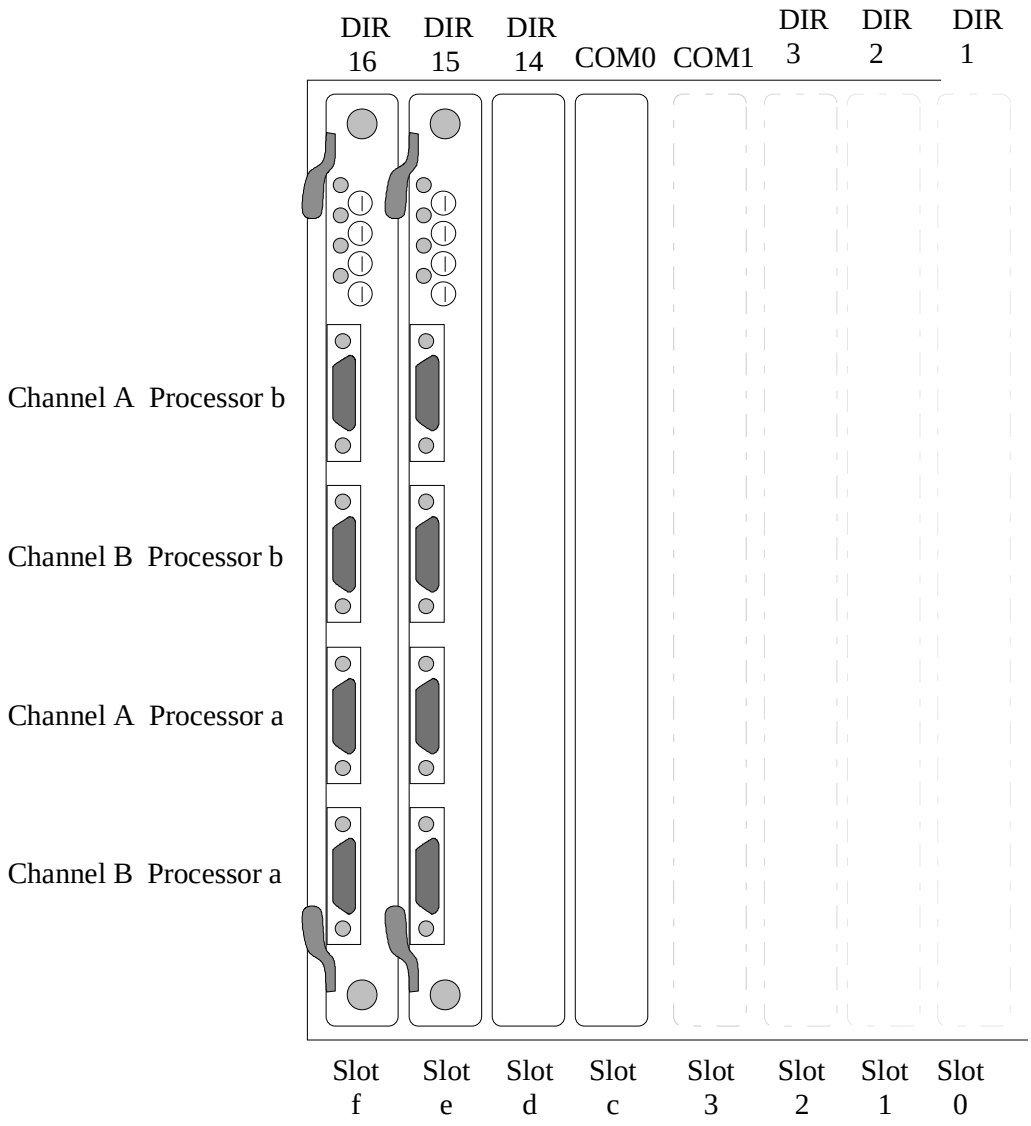


Figure 1-14. Rear Card Cage (Location of SCSI Adapters)

Rear Card Cage - SCSI Adapter Switch Positions

Figures 1-14 shows the SCSI Adapter switch positions in the rear card cage.

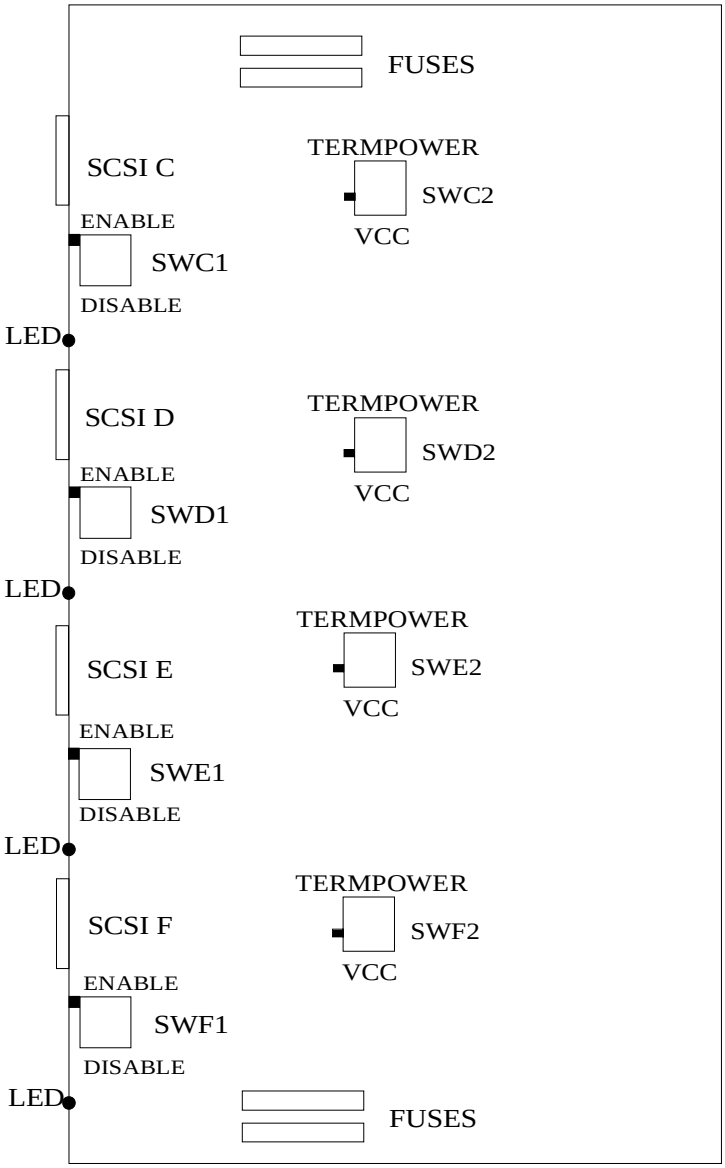


Figure 1-15. SCSI Adapter Switch Positions

Special cables are required to ensure conformity of the grounding link between the host and the CDA 7. The bare part of the cable must be installed in the clamp grounding of the CDA 7 as shown in Figure 1-16. These cables are specific to CDA 7 and will be available for refurbished 5100 models.

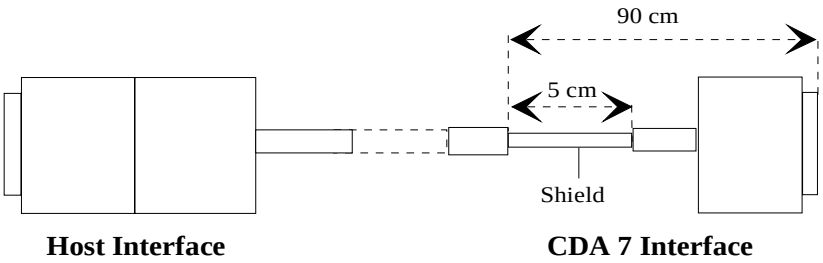


Figure 1-16. SCSI Cable Connection

Rear Card Cage - SCSI Adapter Locations and Port Assignments

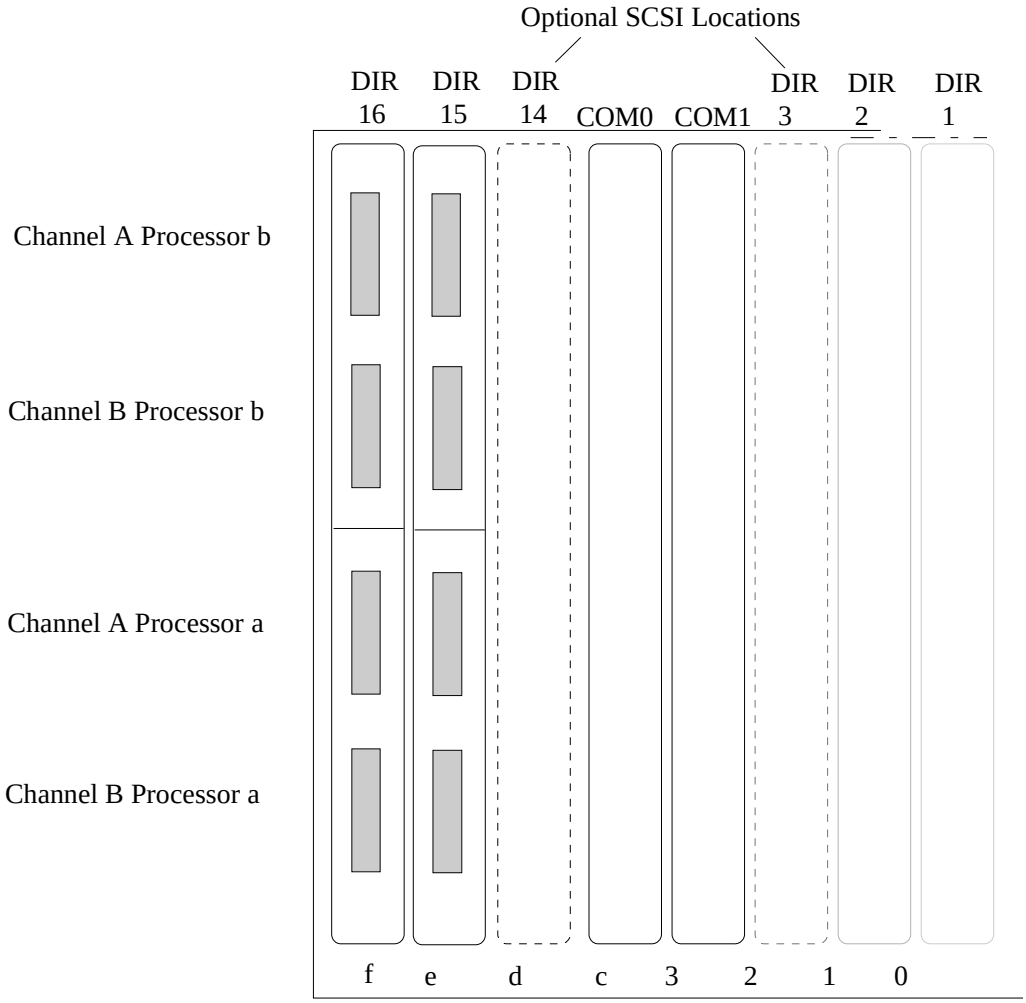


Figure 1-17. SCSI Adapter Locations and Port Assignments

Rear Card Cage - COM Card Location

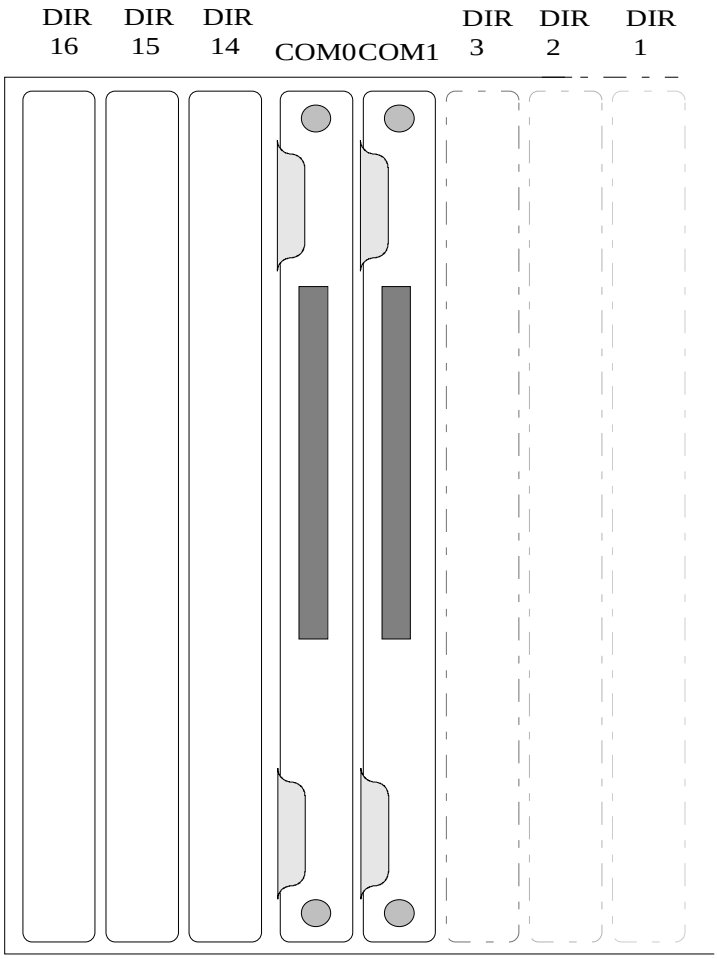


Figure 1-18. Location of COM Card

COM Card

Figure 1-19, below, provides a close-up view of two types of COM cards.

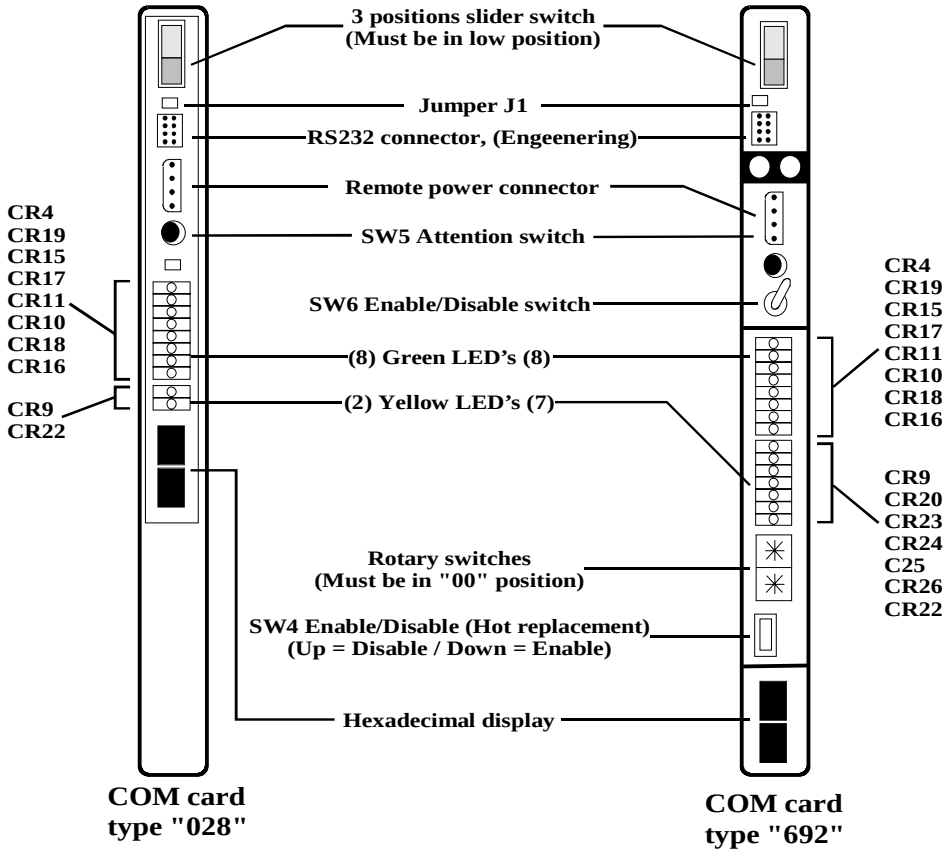


Figure 1-19. COM Card - 2 Types

3.5 inch. Disk-Drives

The CDA 7 uses 3.5" disk-drives with a formatted capacity of 9 or 18 GBytes. 18 Gbyte devices are split into two logical 9 Gbyte drives.

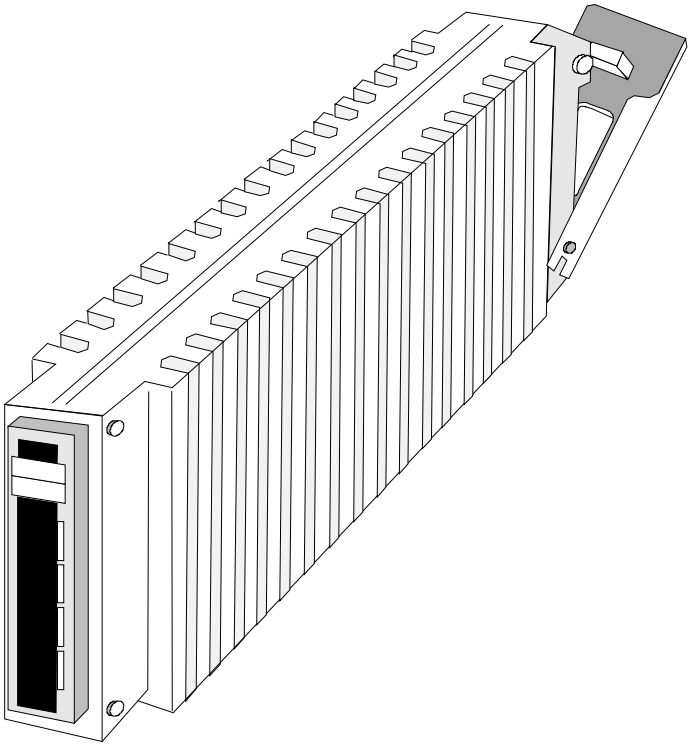


Figure 1-20. 3.5 inch. Disk-Drives

1.3 POWER Subsystem

The CDA 7 power subsystem provides a redundant source of DC power to the major components in the CDA 7 cabinet.

Figure 1-21 provides an overview of the EPO assembly and power supplies above it.

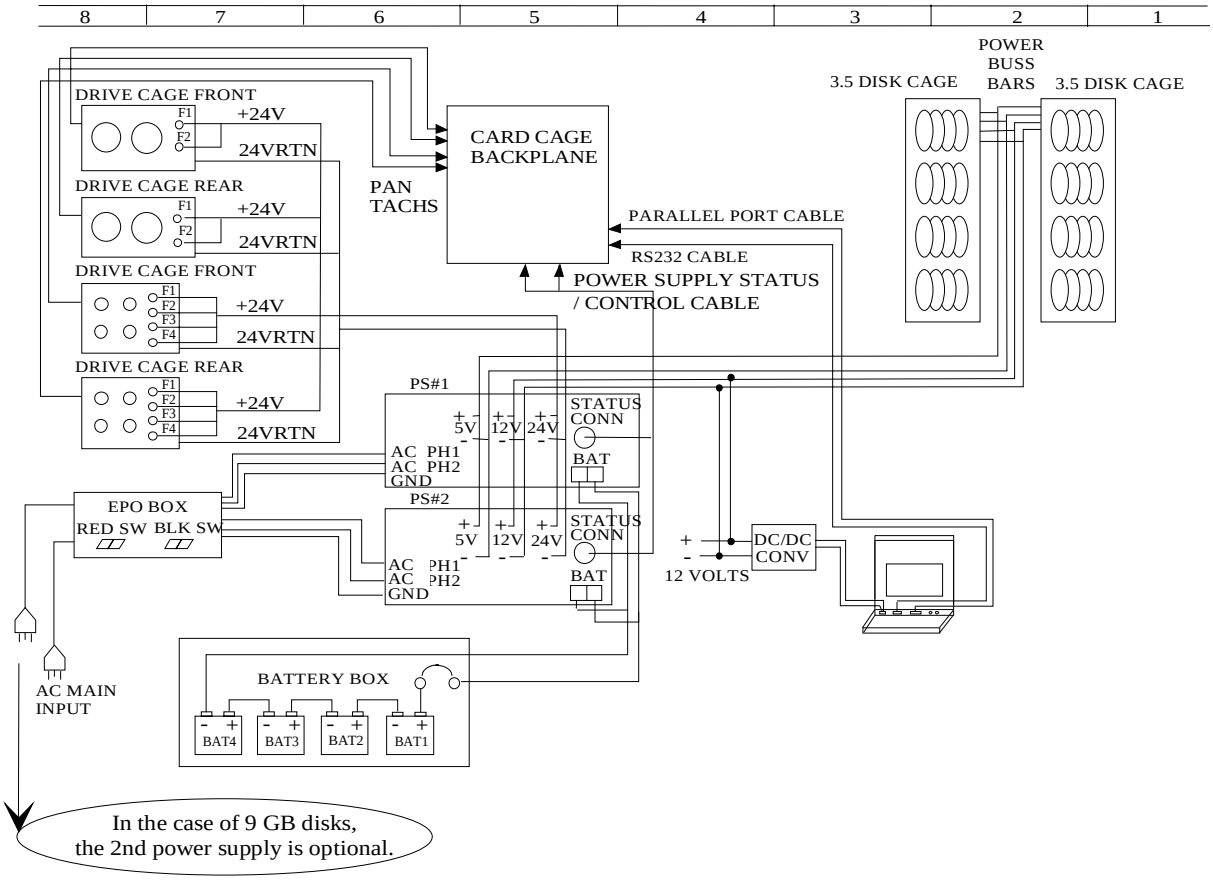


Figure 1-21. CDA 7 Power Subsystem

1.3.1 Fan Assemblies

There are four fan assemblies located under the top cover of the CDA 7.

To remove the top cover, loosen the two captive screws in the back of the CDA 7 and push the top back one to two inches and lift it up.

The Fan Tachs are numbered 1, 2 ,3 and 4 starting from the rear left:

- Tach 3 is at the front right.
- Tach 2 is at the rear right.
- Tach 1 is at the rear left.
- Tach 4 is at the front left.

Figure 1-22 shows a top view of the fan assembly module.

Each assembly is a press-on fit and all fans can be replaced while the system is running.

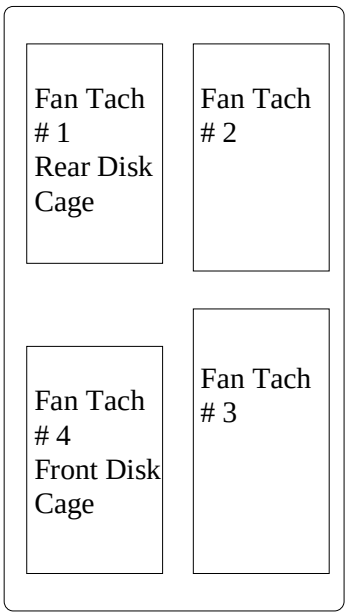


Figure 1-22. Fan Assemblies

1.3.2 Operator Panel

Figure 1-23 shows the operator panel which is located in the upper part of the front door of the CDA 7 5330 unit (9 GB).

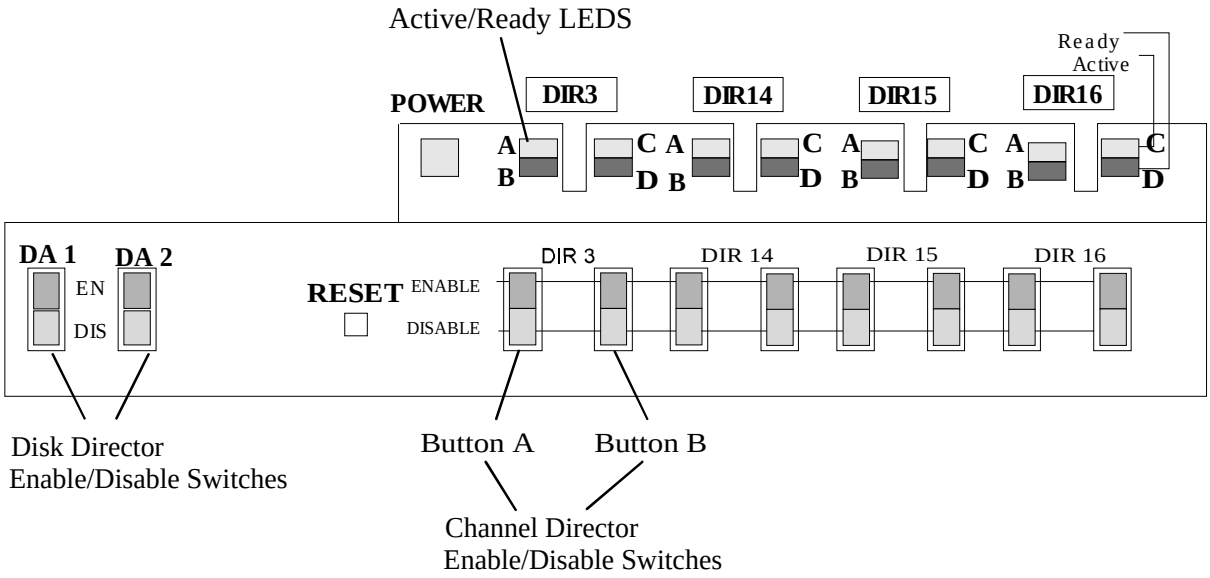


Figure 1-23. Operator Panel - 9 GB

Figure 1-24 shows the operator panel which is located in the upper part of the front door of the CDA 7 5330 unit (18 GB).

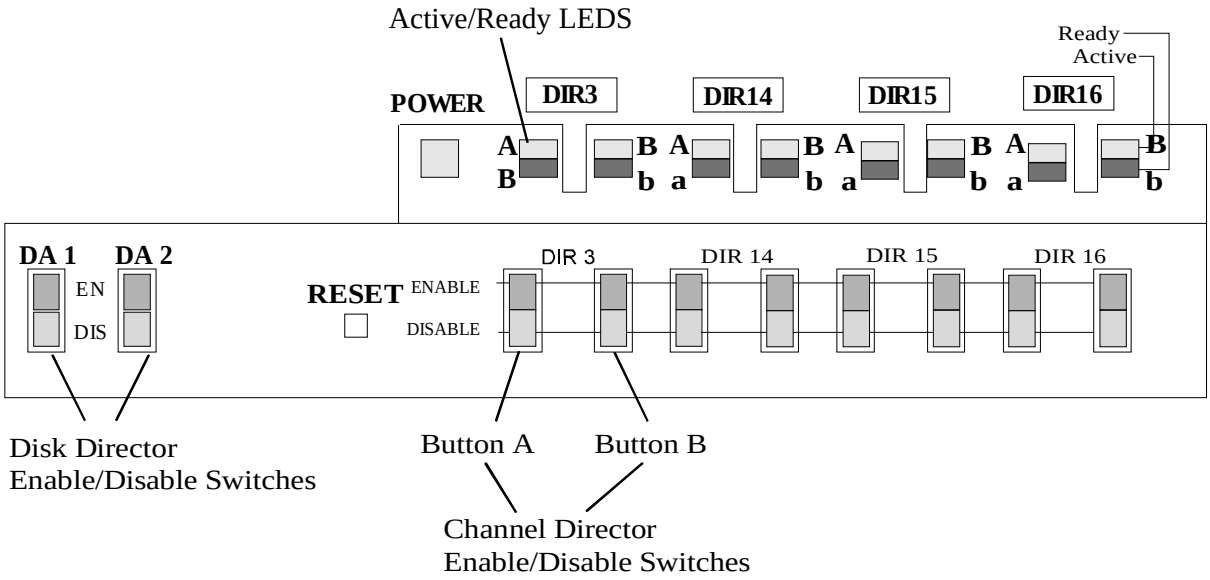


Figure 1-24. Operator Panel - 18 GB

The buttons are protected by a hinged cover in translucent plastic. The details and location of the switches are as follows:

- The two buttons to the left concern the Disk Directors.
- The four pairs (A and B) of buttons on the right correspond to the Channel Directors.

For an SCSI link:

- Button A corresponds to Ports A and B of the corresponding SCSI Adapter card.
- Button B corresponds to Ports C and D of the SCSI Adapter card.

IMPORTANT:
When powering ON and loading the microcode from the Lap-Top, the Directors must be in DISABLE mode.

1.4 CDA 7 System Connection Example

Figure 1-25 shows the configurations possible for CDA 7 system connection.

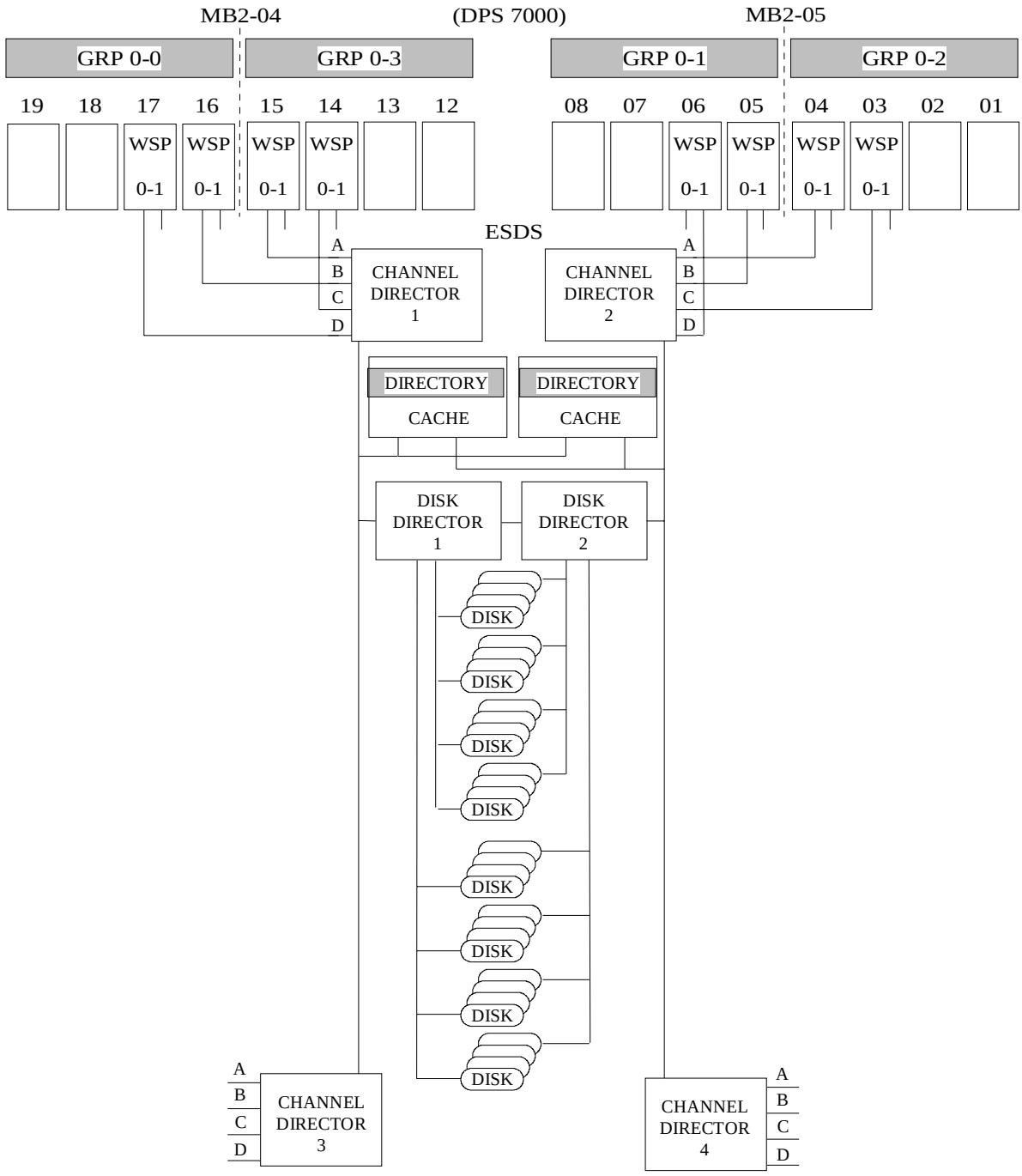


Figure 1-25. System Connection Example (Configurations)

1.4.1 External Cable Requirements

Figure 1-26 shows the external cable requirements for the CDA 7.

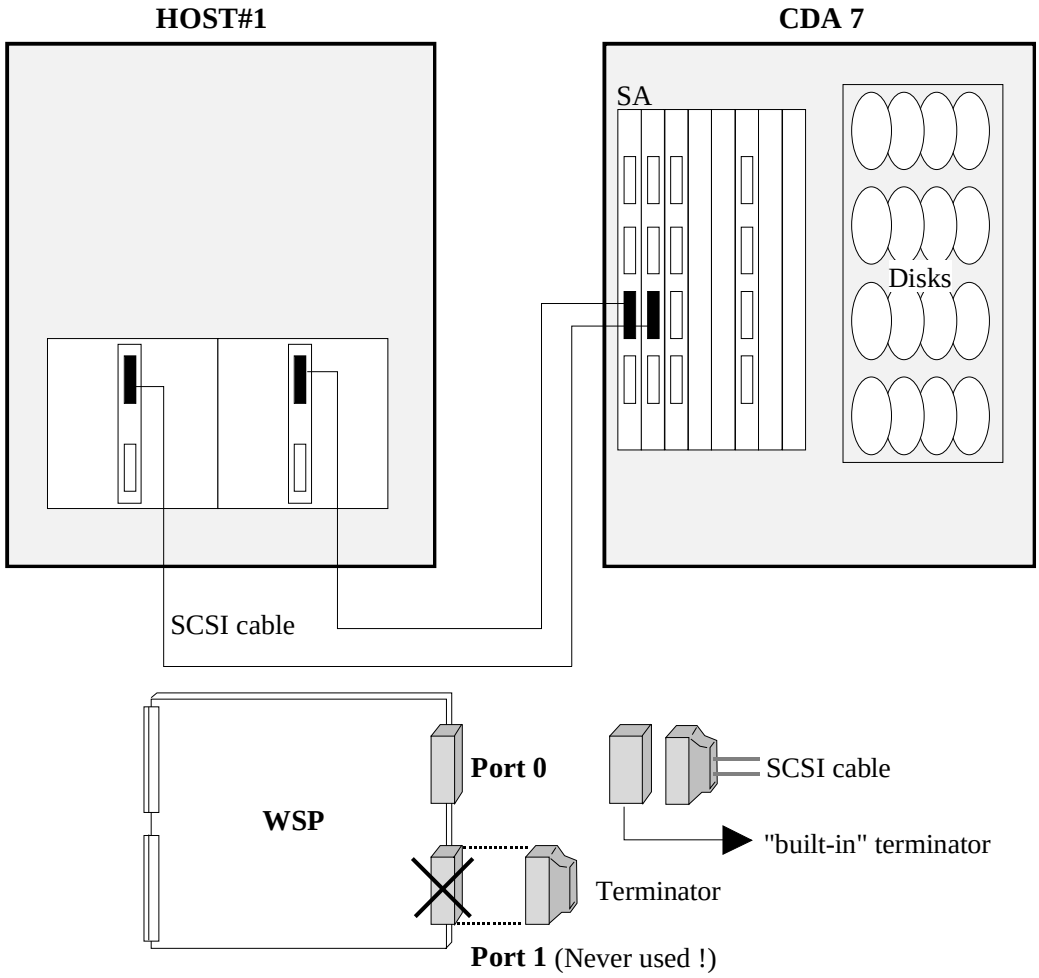


Figure 1-26. CDA 7 External Cable Requirements

1.4.2 LABEL Command

Entering the LABEL command displays the connections file as shown in the figure below. For more information, refer to the *Bull DPS 7000 User's Guide Firmware Release Bulletin*.

```
*** LABELs and CDA7 connections: MYCDA  ***

Iom WSP-R slot 15 PX43
 port 0 connected to Scsi Adaptor slot f port A cda #01
Iom WSP-R slot 04 PX14
 port 0 connected to Scsi Adaptor slot e port A cda #01

*MB2-0-15-2   *   *MC01 SA f-A    *   *MB2-1-04-2    *   *MC21 SA e-A
*             *   *MS01           *   *MS02          *   *MS03        *   *MS04
```

Controller name

Slot #
MB2 #
Port
Slot
SCSI Adapter

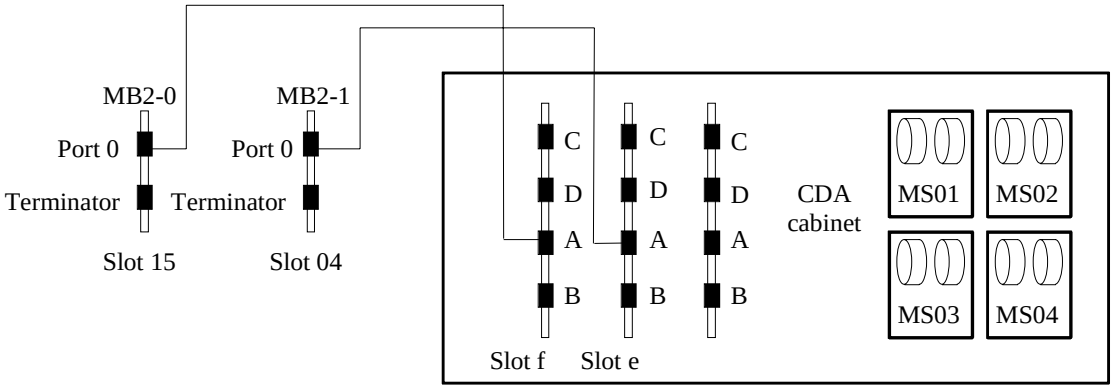


Figure 1-27. CDA 7 Connections

In Figure 1-27 (lower right hand side), the letters "A", "B", "C", and "D" are references used by the MNCONF utility. Their meanings in terms of: Channel Director <-> Processor pairs, are defined in Figure 1-28.

1.4.3 Cable Requirements (View From MNCONF)

Figure 1-28 shows the cable requirements for the CDA 7.

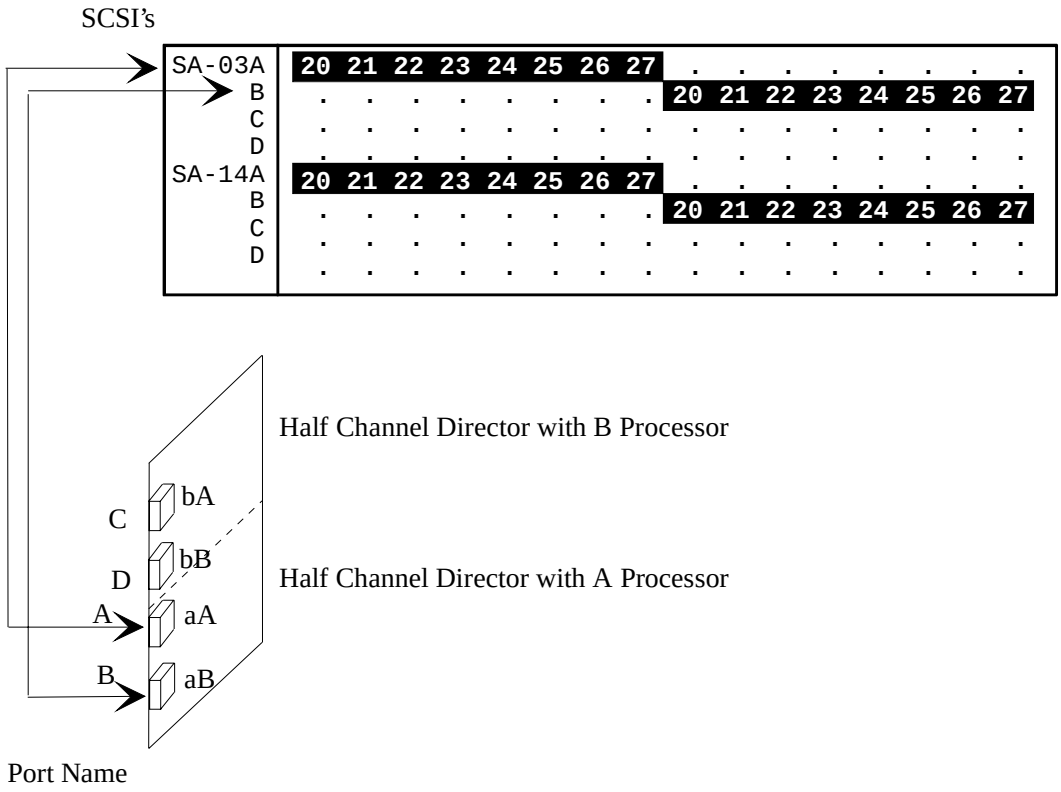


Figure 1-28. Cable Requirements (View From MNCONF)

1.5 Installation Conditions

Fore more information about installation conditions, refer to:

- Appendix C, *Installing the CDA 7 5330 With Microcode Release 5263*, or
- Appendix E, *Installing the CDA 7 5330 With Microcode Release 5264*, or
- Appendix F, *Installing the CDA 7 5630 With Microcode Release 5265*, or
- the *CDA 7 5330 Site Preparation Guide*,
- the *CDA 7 5630 Site Preparation Guide*.

2. About the Lap-Top

2.1 Location of the Lap-Top

The Lap-Top for the CDA 7 is a TwinHead PC model used as a Service Processor. It is located in the front door of the subsystem. The following figure shows the position of the Lap-Top in the front door of the CDA 7.

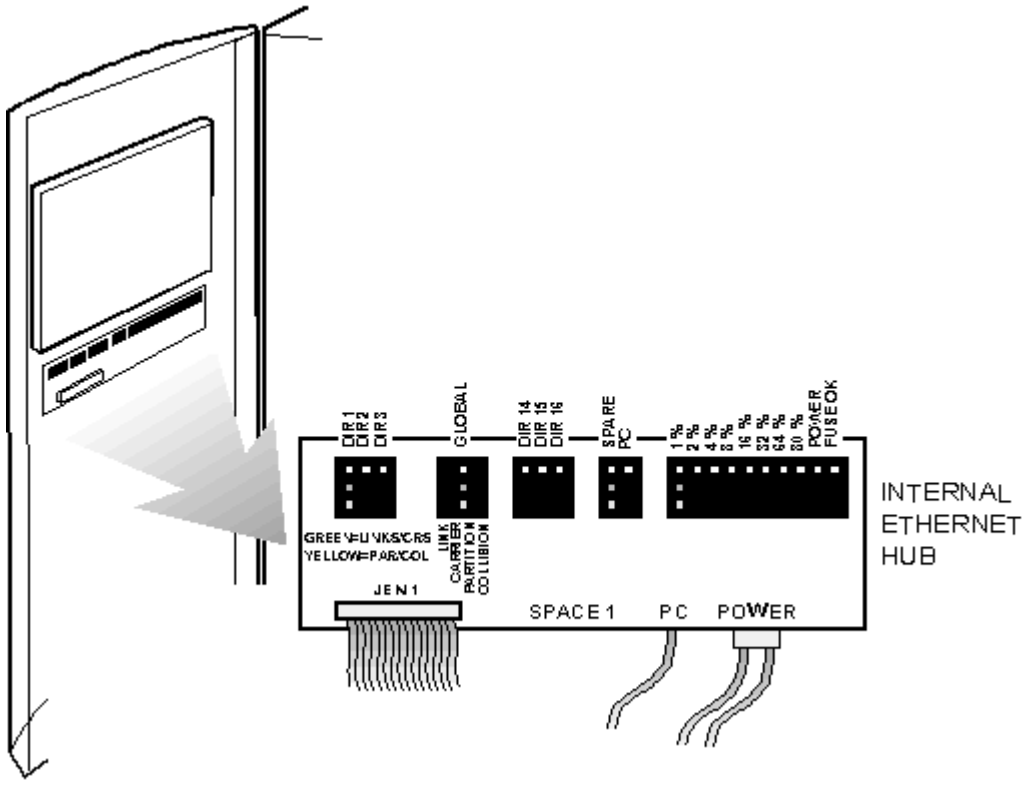


Figure 2-1. CDA 7 and its Lap-Top

2.2 Types of Lap-Top

There are two types of Lap-Top:

- the TwinHead 5 (090-000-039)
- the TwinHead 9 (090-000-040)

2.3 Verifying the Lap-Top Connections

The CDA 7 is delivered with an integral Lap-Top. The following figure shows the connection that must be in place. In case of problems, refer to this figure and verify that all the cables are in the right position.

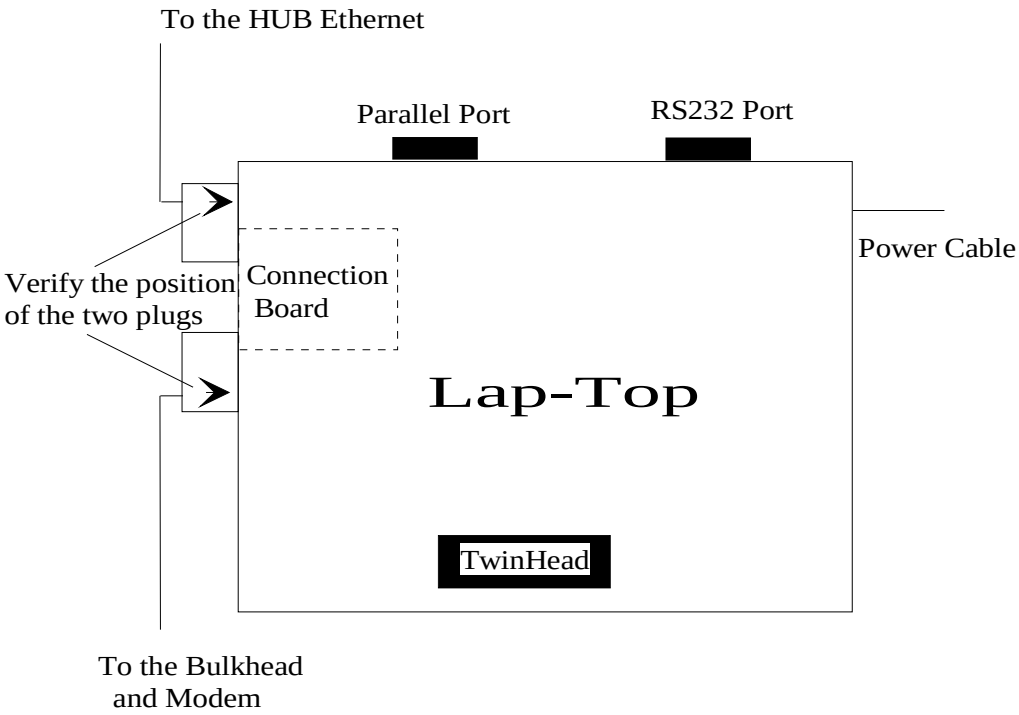


Figure 2-2. Lap-Top Connections

IMPORTANT:
When connecting the TwinHead Lap-Top, verify that the Ethernet and the Modem cables present the arrow on each plug as shown in Figure 2-2.

When you define the setup parameters of your Lap-Top, you need to enter the type of the interface board. To find out the type, proceed as follows:

1. Unplug the Modem and Ethernet cables.
2. To extract the board, press on the lock and remove the board.
3. Read the socket identifier on the board. The two possible values are:
   - Socket I/O
   - Silicom

   For more information, refer to either: Appendix C, *Installing the CDA 7 5330 With Microcode Release 5263*, Appendix E *Installing the CDA 7 5330 With Microcode Release 5264* (depending on your Microcode release) or Appendix F *Installing the CDA 7 5630 With Microcode Release 5265*.
4. Enter the parameter value in the corresponding field.

2.4 Connecting the Modem

Use a modem in the standard of the country where the CDA 7 is to be installed.

The COM card connector dedicated to the modem is at the end of a cable and is accessible at the Bus & Tag BULKHEAD on the front, by means of internal cabling:

1. To locate the cables and connectors, refer to the figure *Lap-Top Connections* above.
2. The two cables on the left of the Lap-top have an arrow on the upper side of the connectors. Connect the Hub Ethernet and the Modem cables as shown on the figure (the arrow is on the outside part of the connectors).
3. Remove the RFI shielding that protects the access of the connectors in the lower part of the CDA 7 subsystem. To do this, unscrew the two screws as shown in the following figure:

CDA 7 Subsystem
Front View

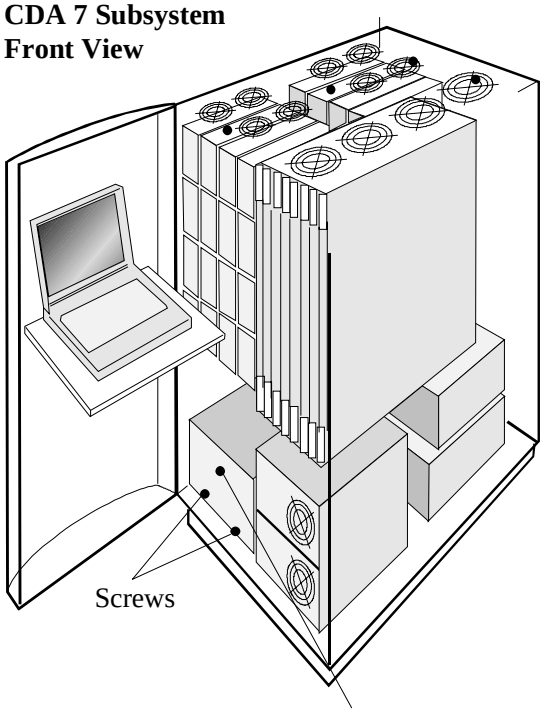


Figure 2-3. Cover of the Modem Plug

4. Connect the cable to the connector, and put the RFI shielding in place. You can put the modem on this shielding in the front part of the subsystem.

3. System Repairs

This chapter contains only a broad outline of the procedures for removing and replacing CDA 7 components. The replacement procedure used depends on the category to which the component in question belongs. For full details of the procedures, refer to the *SYMMETRIX Maintenance Manual* Part Number PN-200-858-551, and in all cases contact your Bull Competence Center.

3.1 ORU Classes

There are two classes for ORU replacement:

- Class A, "non-disruptive procedure": Those that can be removed and replaced while the system remains on-line.
- Class B, "disruptive procedure": Those that must be removed and replaced off-line.

Table 3-1. ORU Classes

	Class A Not PC Menu Driven	Class A PC Menu Driven	Class B
DISK DIRECTOR		X	
Channel DIRECTOR		X	
Memory Card			X
Adapter Card			X
Disk-drive		X	
COM Card	X		
Power Supply	X		
PDM			X
Battery	X		
LAP-TOP	X		
Fan Unit	X		
Microcode	X		X
Operator Panel	X		

NOTE:
ORUs replaced with the assistance of a PC Lap-Top are distinguished from other ORUs. A number of components do not appear in this table since they are obviously replaced off-line.

3.2 Power Down/power up Procedure

This procedure describes the steps for powering down and powering up the CDA 7. There are two procedures for powering down:

- routine
- emergency

3.2.1 Routine Power Down

To power down your CDA 7 subsystem:

1. From your GCOS console, set the channels off-line. To do this, use the TSYS 1 and HOLD MC commands.
2. TS All (under SPV).
3. Verify that all information in the cache has been "destaged".
4. Switch the Directors to Disable status on the operator panel.
5. Set the AC POWER SWITCH on the Power Distribution Module to the down position and wait for the cooling fans to stop.
6. In any circumstances, do not touch the EPO SWITCH.
7. Turn the battery OFF.

3.2.2 Emergency Power Down

In case of emergency power down:

1. Turn the EPO switch OFF. The AC power switch will drop automatically and the cooling fans will stop after approximately 20 seconds.
2. Before powering up the CDA 7, call the Bull Competence Center.

CAUTION:
Restarting after an Emergency Power Down must be done only after contacting the Bull Competence Center.

3.2.3 Power On

To power ON your CDA 7 subsystem:

1. Turn the battery ON.
2. Verify that the EPO switch is in the up position.
3. Set the AC power switch on the Power Distribution Module to the up position and wait for the end of IML operations. The DIRECTORS hexadecimal displays will then show "**0F**".
4. Switch the DIRECTORS to the ENABLE state on the operator panel.
5. Set the channels on the GCOS console to on-line.

3.3 Non-disruptive Replacement of Components

The replacement is done using the hot remplacement menu of the lap top. The following paragraphs give the guidelines for each type of component.

Before carrying out replacement procedures, you must ensure that the Write Pending status is at 0. Switch to INLINES session mode and send the 'A7' command.

```
DA- 1a: DISK SUBSYSTEM=> A7

UTILITY A7 -- Show system devices Attrib/WP/Invalid : TIME: NOV/10/98 12:32:46
-----------------------------------------------------
  NOT RDY WR DIS TYPE  DEV             WRT   FMT   |    INVALID TRACKS COUNTS
DV# M1234 M1234 M1234  ATTR           PEND  PEND   |   M1     M2     M3     M4
-----------------------------------------------------|-----------------------------
 0F  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 10  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 11  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 12  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 13  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 14  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 15  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 16  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240
 17  XX--  ..--  mm--  ofs...........     0     0 |     0      0 276240 276240

TOTAL  WR PEND TRACKS / FMT PEND:    0 / 0  START/END_DV:   F /  17
TOTAL  M1/M2/M3/M4 INVALID TRACKS:   0 / 0 / 0 / 0

GLOBAL WR PEND TRACKS / FMT PEND:    0 / 0
GLOBAL M1/M2/M3/M4 INVALID TRACKS:   0 / 0 / 0 / 0
--- DONE ---
DA- 1a: DISK SUBSYSTEM=>
```

3.3.1 Replacing a Disk-Drive

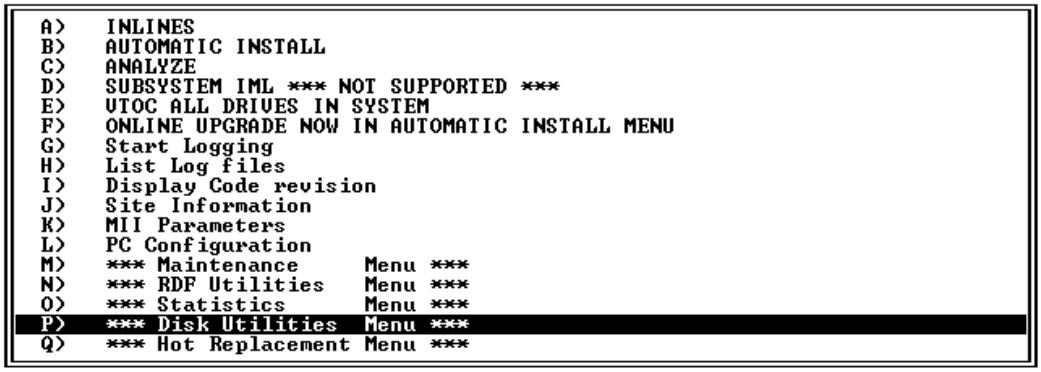
To replace a disk-drive, follow the procedure described hereafter:

- Identify the disk-drive.
- Replace the identified disk-drive.

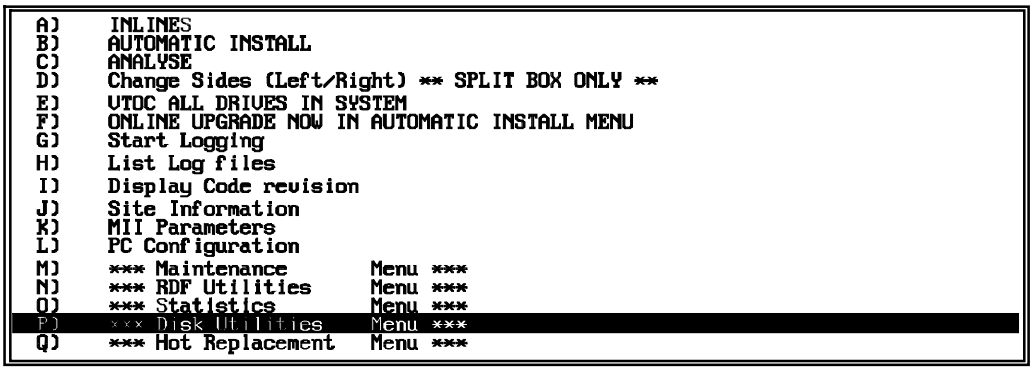
3.3.1.1 Identifying the Disk-Drive

To identify a disk-drive in the cluster:

1. Using the deplacement arrows, go to the **Disk Utilities Menu** or enter **P**. A window is displayed.

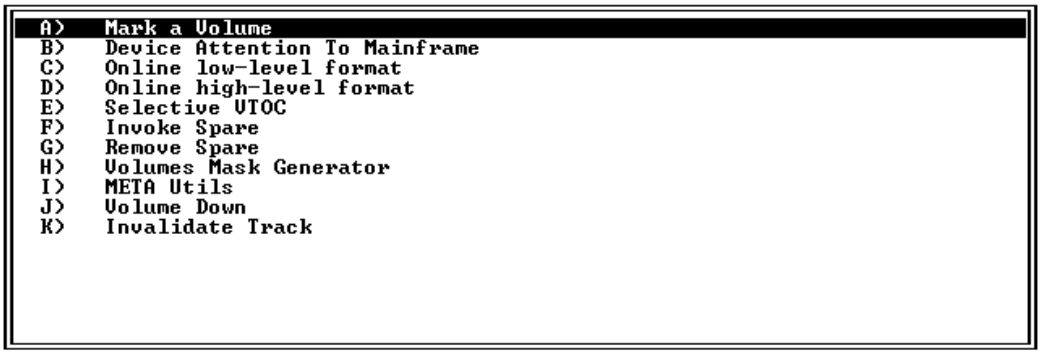


CDA7 5330 version

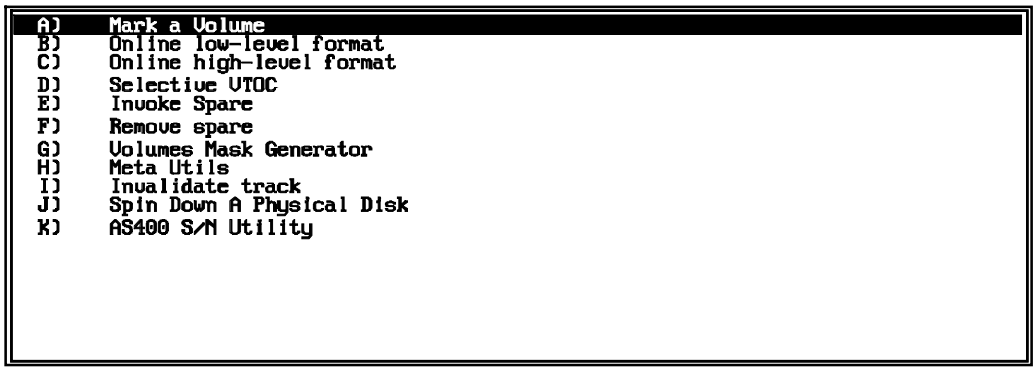


CDA7 5630 version

2. Select the **Mark a Volume** option or enter **A**.



CDA7 5330 version



CDA7 5630 version

3. A window is displayed. Highlight the **Turn LED ON** option and press **Enter** to select it. A window is displayed.

   Highlight the **Single Device** option and press **Enter** to select it. A dialog box displays the following message: **Enter Entire Device Number to Mark**.

5. Enter a four digit number. From the right to the left:

the first digit	is 1 for a data or mirror 1 disk or 2 for a mirror 2 or parity disk
three last digits	is the number of the disk-drive (DV)

EXAMPLE:

To turn ON the LED of the mirror disk-drive 0: enter 1000. The LED turns ON as shown in the following figure.

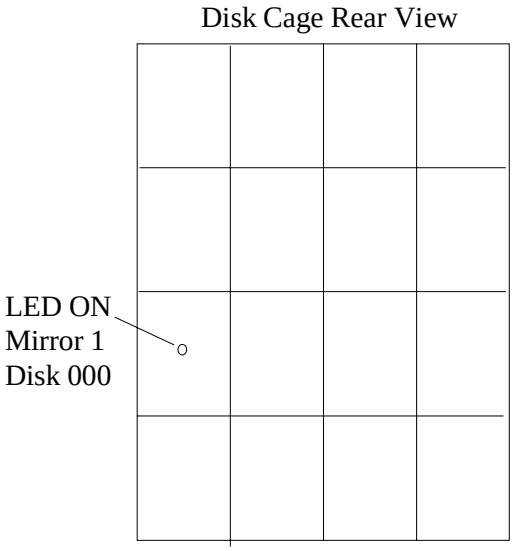
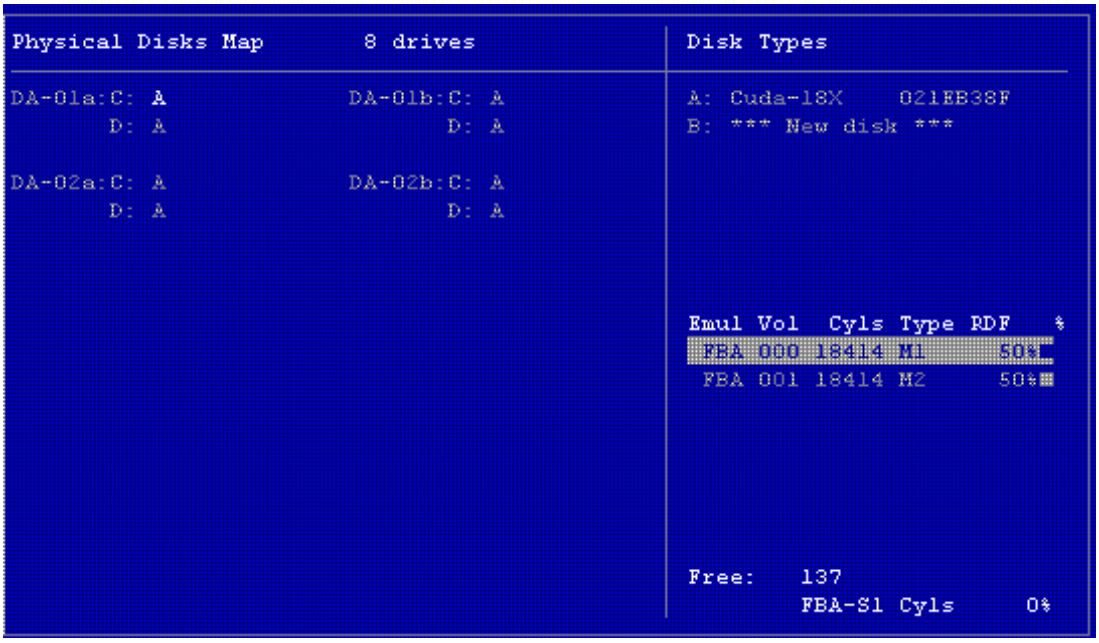


Figure 3-1. Marking the Mirror Disk-Drive 1000

The information of the mirror Disk-drive 1000 is as follows:

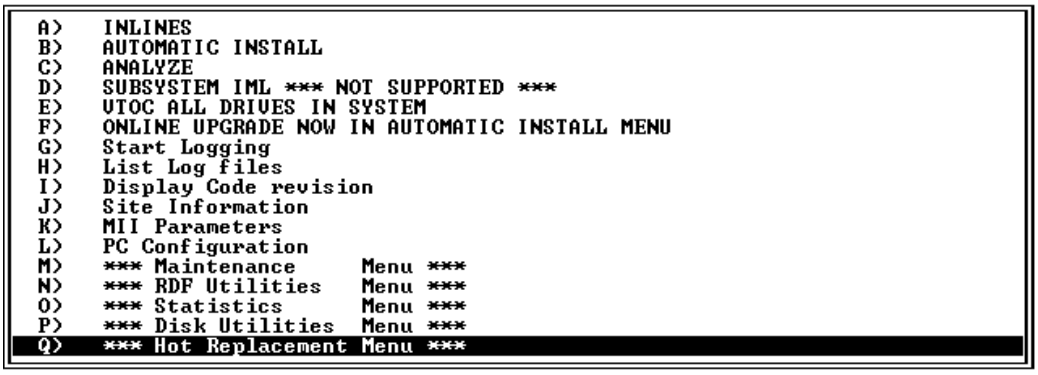


❑

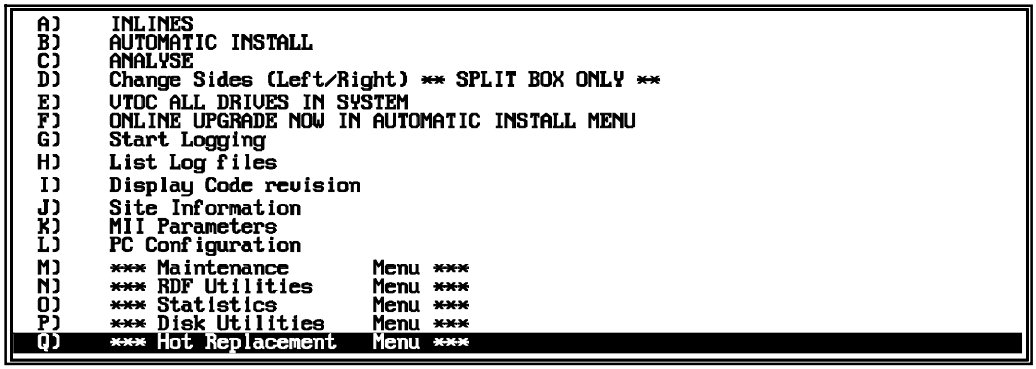
3.3.1.2 Replacing the Identified Disk-Drive

To replace the disk-drive you just identified:

1. From the main window, select the **Hot Replacement Menu** or enter **Q**. A window is displayed.

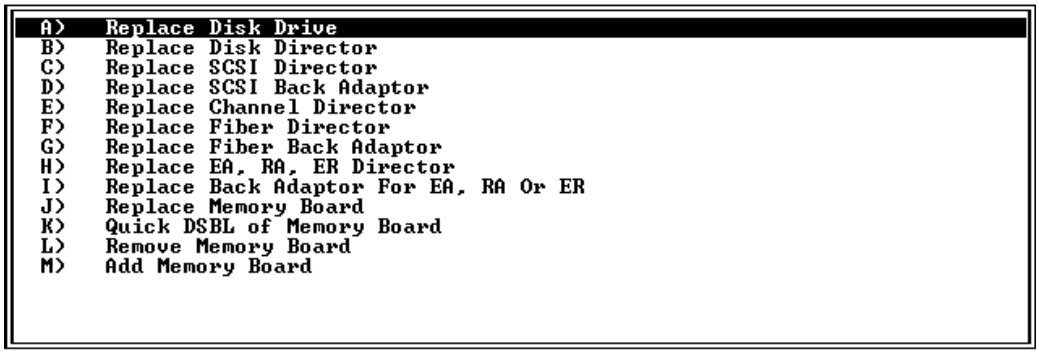


CDA7 5330 version

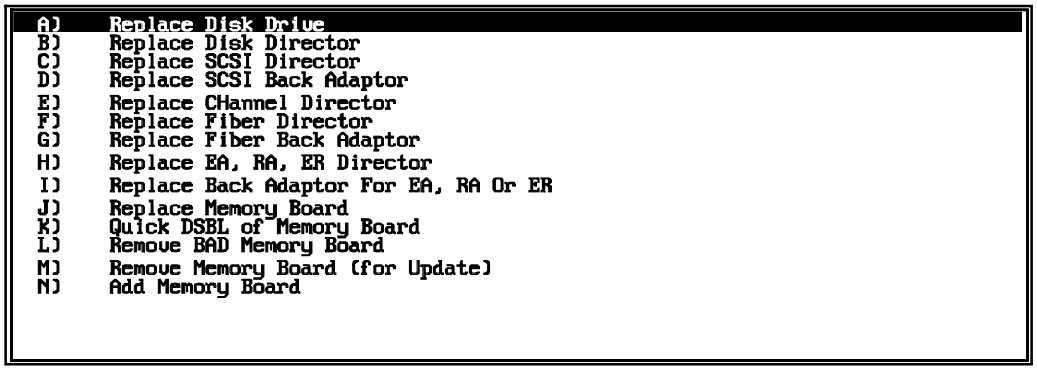


CDA7 5630 version

2. Select the **Replace Disk Drive** option or press **A**.



CDA7 5330 version



CDA7 5630 version

A window displays the following information.

Non Mirror	Mirror 1	Mirror 2
Mirror 3	RAID DATA	RAID Parity
RDF R1	RDF R2	RDF R3 Mirror For
RDF R3 Mirror For An R2	BCV Volume	An R1 Spare Device

3. Using the arrows, highlight the **Mirror 2** option and press **Enter**. A dialog box displays the following message: **Checking Mirrored Device Ready Status**.
4. To validate this message, press **Enter**. Several messages are displayed, then you are prompted to extract the disk-drive.

5. Extract the disk-drive. Several messages are displayed, then you are prompted to place the new disk-drive.
6. Place the new disk-drive. The data is rebuilt from the mirror disk-drive.

3.3.2 Replacing the Director and Communication Card

This procedure is valid for all DIRECTORS except DA#1:

- switch Disk Director to ENABLE, Channel DIRECTORS to DISABLE on the operator panel.
- display the **Hot replacement** menu, then select the card type.

The figure below illustrates schematically the steps involved in this procedure:

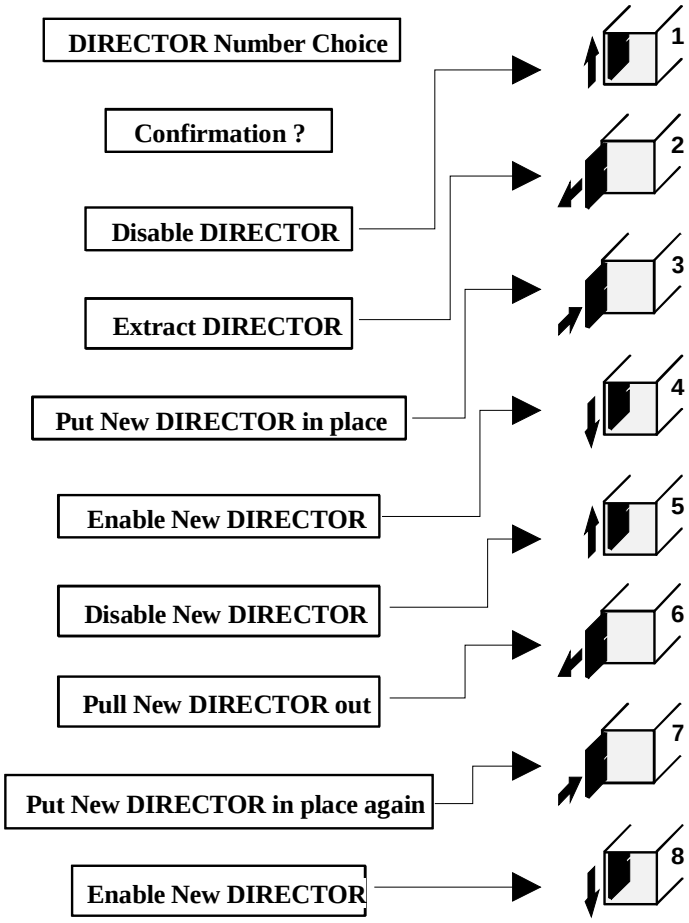


Figure 3-2. Director and COM Card Replacement Procedure

The details of the procedure are as follows:

1. Enter the number of directors to be replaced.
2. Transfer the data load from DIR 1 to DIR 2.
3. Change the DIR 1. A message box is displayed and, it prompts you to enter the **LAN Number**.
4. Enter **2**.
5. Transfer the data load from DIR 2 to DIR 1.

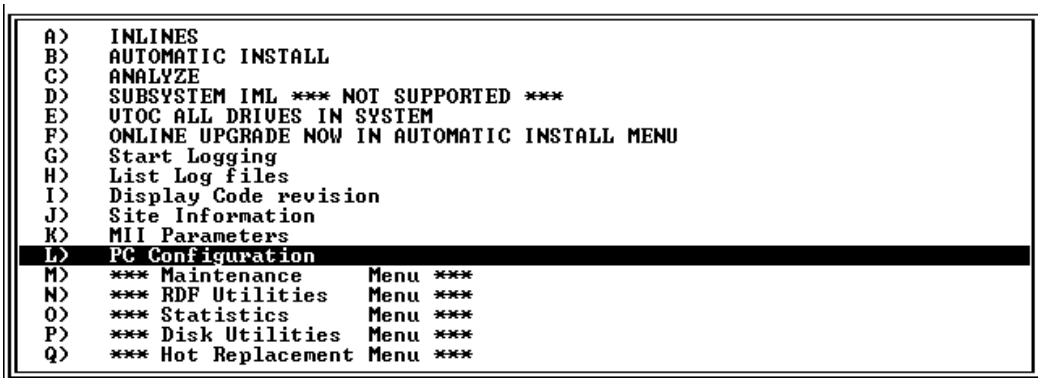
```
2 <Enter>
Director 2 Must be ONLINE!
Are you sure? Y<Enter>
Please verify Director 2 is disabled by the tiny yellow switch on the board.
Done? Y <Enter>
Please pull director 2 out.
Done? Y <Enter>
Please disable the new directory using the tiny yellow switch on the board.
Done? Y <Enter>
Please put new director in place.
Done? Y <Enter>
Learning Configuration from Hardware.
Directors: 1-2,15-16
Replacement director type: D
New dir_ty: D
Old dir_ty: D
Candidates 1 are: 1
Candidates 3 are: 1
Please disable the new director using the tiny yellow switch on the board.
Done? Y <Enter>
Please wait few seconds before you answer!\
Does the director display "DD" or "BE"? Y <Enter>
Please pull director 2 out\and put back in again to reset the board.
Done? Y <Enter>
New director already displays "DD" or "BE"? Y <Enter>
Please enable the new director using the tiny yellow switch on the board.
Done? Y <Enter>
Please make sure the dials of director 2 are 08.
Done? Y <Enter>

UTILITY FD -- Fast ONLINE IMPL: TIME: SEP/12/95 15:25:45----O.K.
```

3.3.3 Replacing the DA#1 from the Lap-Top Access Change

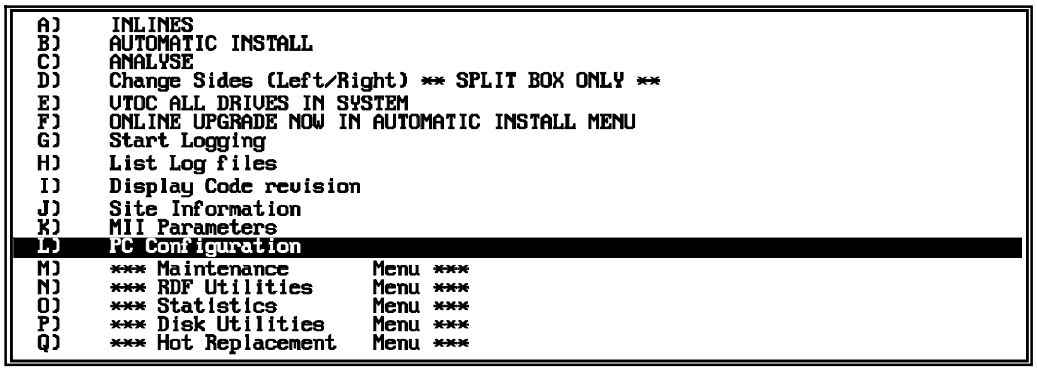
NOTE:
Before replacing the DA#1 from the Lap-Top access change, call the Bull Competence Center.

To define the default access on DA#1:

1. Using the deplacement arrows, highlight the **PC Configuration** option or press **L**. The **Site Information** window is displayed.

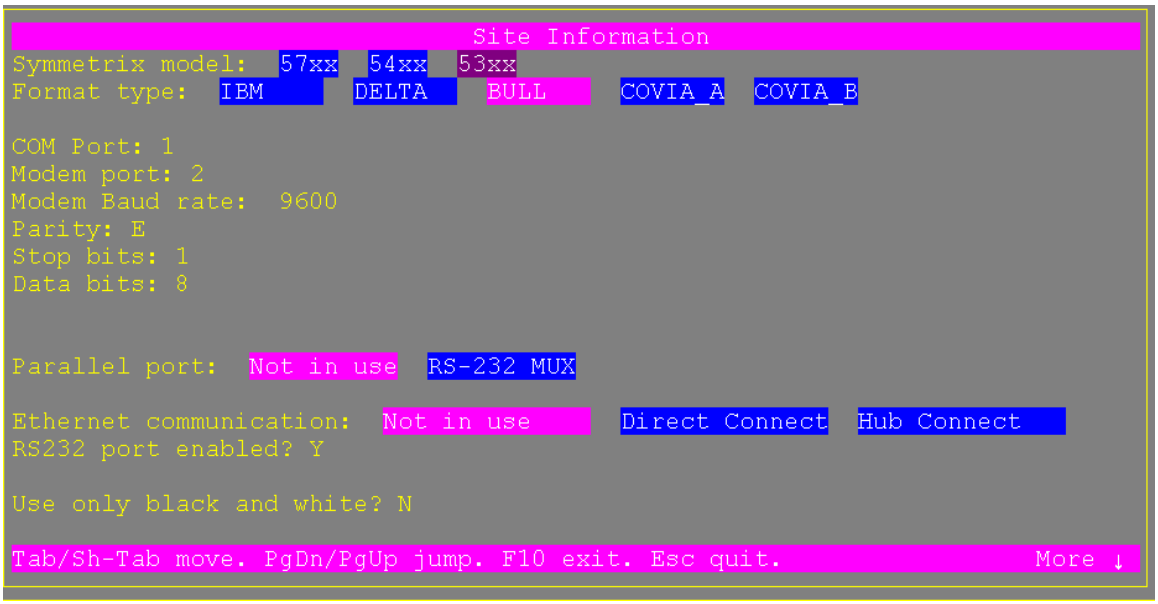


CDA7 5330 version



CDA7 5630 version

2. Highlight the **RS-232 MUX** option and press **Enter**. The default value of the **MUX 'Local' director** is 02.



3. Enter the number of the DIRECTOR to **MUX 'Local' director**.
4. At the end of the operation, highlight the **Parallel port** option: **Not in use** and press **Enter**.

3.3.4 Replacing the Memory Board

To replace the memory board:

1. Highlight the **Hot Replacement Menu** and press Enter.
2. Select the type of board. The procedure is as follows:

```
Replace memory board
........
Memory MAP: HEX
Slot
03    0000
      0008
      0010
      0028

0C    0020
      0028
      0030
      0038
.......................................
Total bank count: 40
"CACHE START ADD":09977000 (bank: 0004)
"CACHE LAST ADD":F777B000 (bank: 003F)
Slot number (one of 3-C) to replace: 3 Are you sure? Y

     0030
     0038
.................
Total bank count: 40
"CACHE START ADD": 09977000 (bank: 004)
"CACHE LAST ADD" : 7FFFB000 (bank: 003F)

Slot number (one of 3-C) to replace: C Are you sure? Y

Disable banks 0020-003F
Verifying directors: 1 2 3 14 15 16
Verify DAs have no write pending

Waiting for Channel adapters
Program board in slot: 0C bank: 0380 count: 20 option/F

     0030
     0038
.........................
Total bank count: 40

"CACHE START ADD": 0997700 (bank: 0004)
"CACHE LAST ADD" : 7FFFB000 (bank: 003F)

Slot number (one of 3-C) to replace: C Are you sure? Y

******Memory test may take considerable time.*******
      Do you want to skip the test? Y
Waiting for memory test
Type Ctrl Q to skip forward  XX:XX minutes passed
```

3.3.5 Replacing the Battery

The procedure for replacing the battery is as follows:

1. Turn the battery OFF.
2. Remove the two screws from the left of the battery.
3. Remove the PS1/PS2 Power/Battery cables.
4. Use the handle to pull the battery backwards (be careful, it is very heavy)
5. Position the new battery in the cabinet.
6. Replace the battery retaining screws.
7. Plug in the PS1/PS2 Power/Battery cables.
8. Turn the battery ON.

Figure 3-3 shows you how to unmount the lateral panel if necessary:

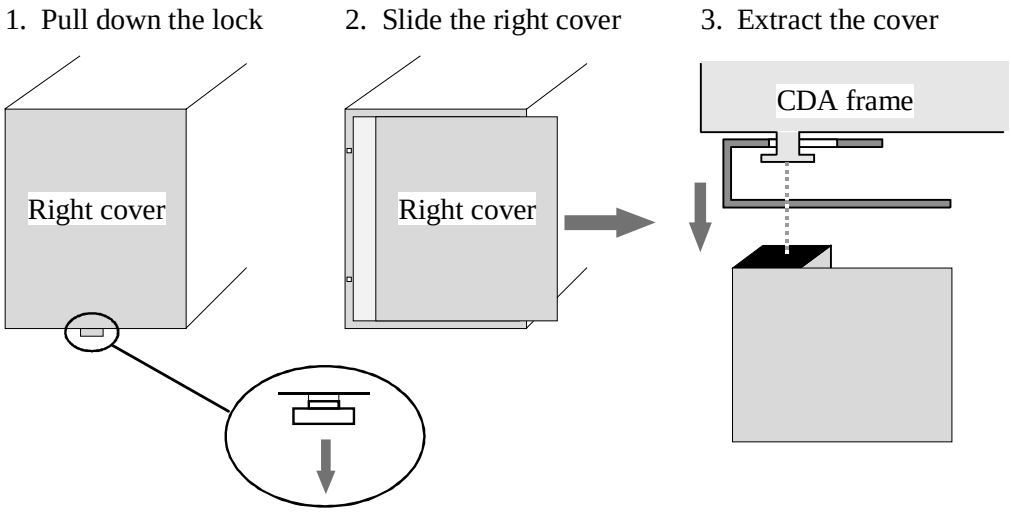


Figure 3-3. Unmounting Lateral Panel

1. Locate the locking tab under the right cover.
2. Pull it down to clear the lock.
3. Slide the cover at the same time to clear it from its four retaining lugs.
4. Remove the cover by pulling it towards you.

3.3.6 Replacing a Fan Module

Figure 3-4 shows you the location of fan modules:

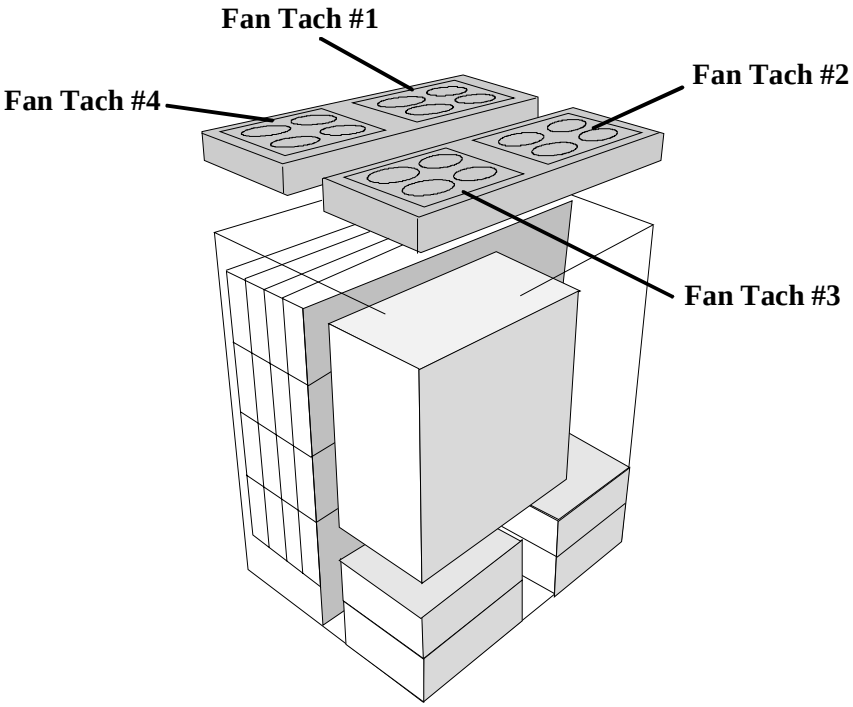
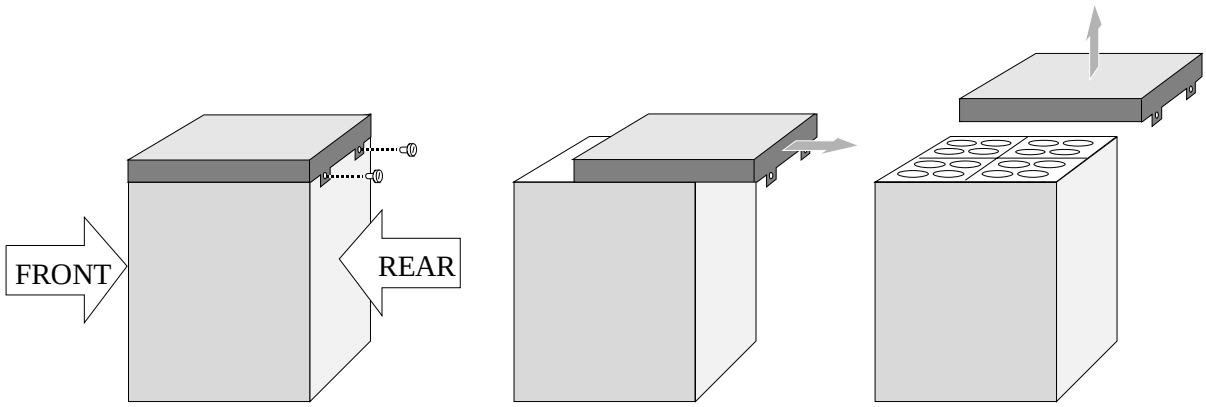


Figure 3-4. Location of Fan Modules

Unmount the upper cover of the cabinet, and remove the two fan fixing screws which are accessible from behind, then slide backward and lift slowly as shown in figure 3-5.



1. Remove the two screws
2. Slide backward
3. Lift slowly

Figure 3-5. Unmounting Fan Modules

3.3.7 Replacing the Power Supply

Figure 3-6 shows the battery with an extension cable:

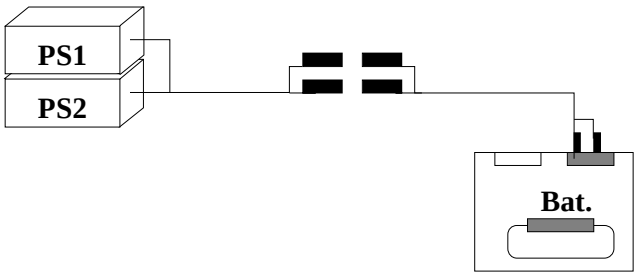


Figure 3-6. Battery With Extension

1. Remove the battery and attach it if necessary to an extension cable.
2. Turn the power supply being replaced OFF at the Power Distribution Module (PDM).
3. Disconnect the power supply from the tension buses using the blue key delivered in the tool kit.

Figure 3-7 shows a rear view of the power supplies:

PS1 & PS2 Rear View

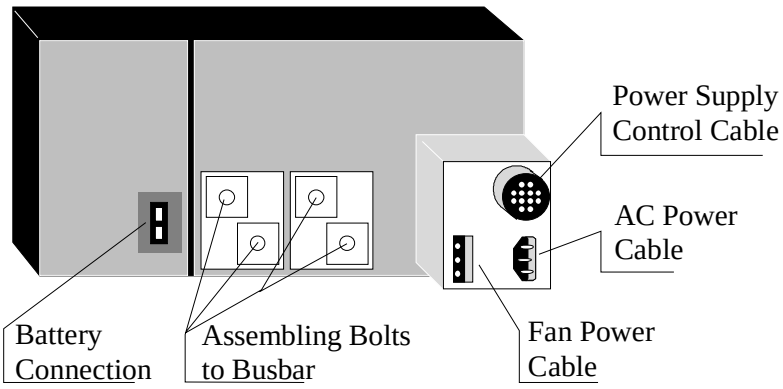


Figure 3-7. Power Supply (Rear View)

4. On the rear of the power supply, remove the four connectors:
   - Sense cable connector (or power supply control cable in the diagram above)
   - AC power connector
   - Fan connector
   - Battery connector
5. Unscrew the fixing screw on the front and remove the power supply from its casing (from the front).
6. Slide in the new power supply and secure it with the screws from the front, then tighten the torque bullets with the blue key until they click (the system is designed to limit tightening to a correct value).
7. Turn the power supply ON.
8. Remount the battery in the cabinet removing its extension cable.

3.3.8 Replacing the Lap-Top

The Lap-Top in the CDA 7 subsystem is a TwinHead PC.

Figure 3-8 shows the Lap-Top in place in the front door of the CDA 7 subsystem.

Figure 3-8. Lap-Top in the Front Door

To replace the Lap-Top follow the procedure described hereafter:

1. Make sure the Lap-Top is off.
2. Disconnect the plugs from the Lap-Top (tension and logical), leaving the cables in place.
3. Unmount the Lap-Top.
4. Place the new Lap-Top in position, and connect it plug-to-plug.
5. Power up the Lap-Top, wait for the main menu to appear and enter MS-DOS.
6. Make a directory **New Code** and copy the six diskettes in this **New Code** directory.

The MICROCODE installation procedure will take place, follow the messages displayed on the screen.

While the subsystem can operate without the Lap-Top, you should be aware that:

- there is no error logging,
- there are no AUTOCALLS if there is an incident,
- hot replacement is no longer possible.

3.4 Disruptive Replacement Procedures

3.4.1 Replacing the Power Distribution Module

The Power Distribution Model replacement procedure is as follows:

1. Power down the system, including PS1 and PS2.
2. Disconnect the AC main cable.
3. Remove the PDM fixing screw.
4. Remove the Module carefully.
5. Unplug the PS1, PS2 and Modem power supply cables from the back of the module, as shown in Figure 3-9, below:

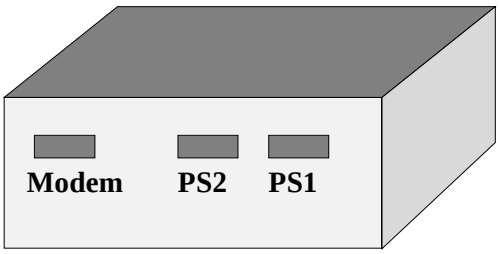


Figure 3-9. Power Distribution Module

6. Insert the replacement module by connecting the cables on the back of the module.
7. Secure it to the frame.
8. Power up the system.

3.4.2 Replacing the Adapter Card

To replace the Adapter Card, proceed as follows:

1. Power down the system.
2. Disconnect the SCSI/FIPS cables from the card.
3. Remove the two fixing screws from the card.
4. Be sure to take appropriate anti-static precautions.
5. Remove the card from its casing using its extractors.
6. Remount the new card by following the unmounting steps in reverse.

3.5 Alarm Codes and Errors

3.5.1 COM Card Alarm Code

Figure 3-10, below, shows the hexadecimal display on the two COM card types.

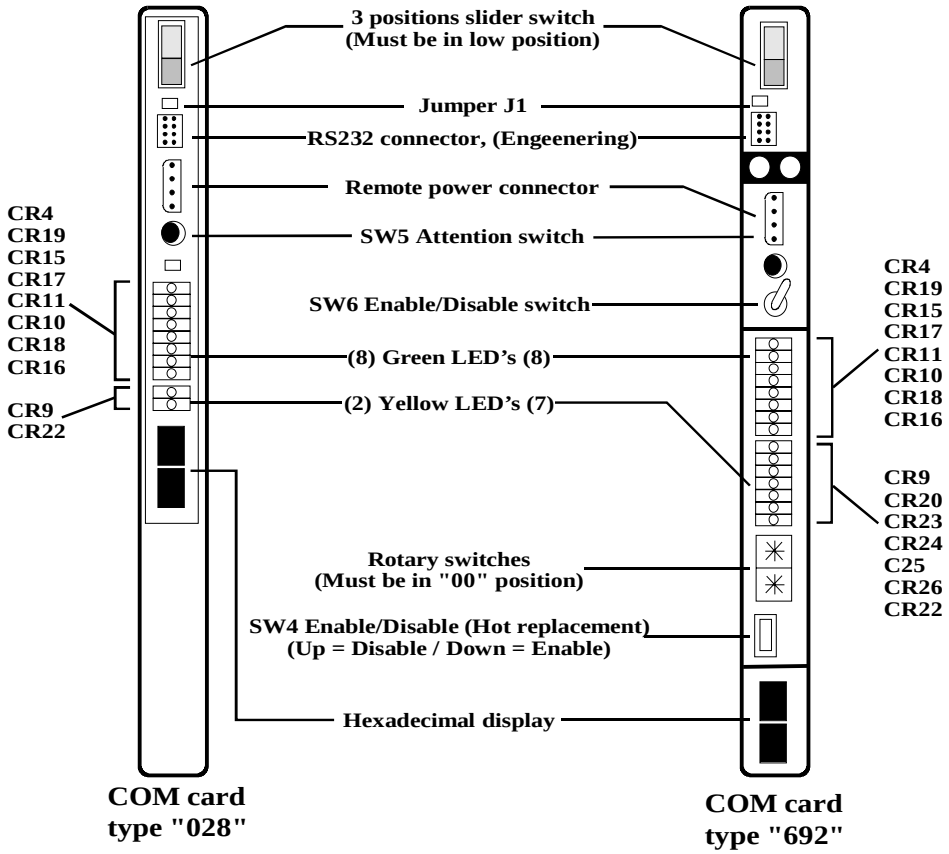


Figure 3-10. Alarm Codes

3.5.2 Director Alarm Codes

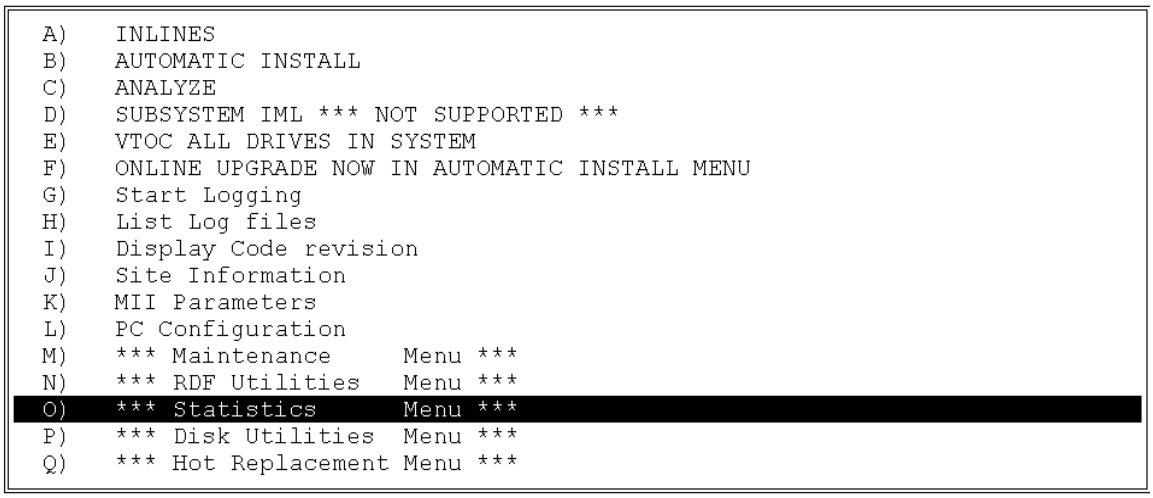
There are two Director alarm codes.

- .**OF** = The DIRECTOR is Off-line.
- .**DD** = The DIRECTOR is no longer functioning (dead).

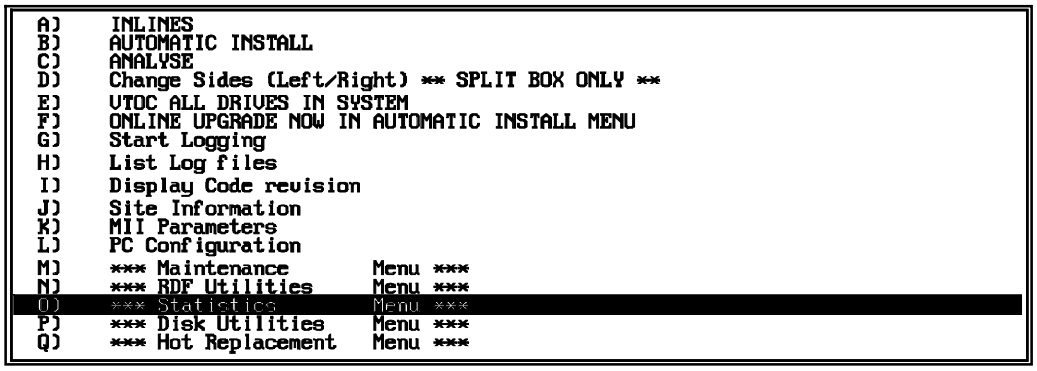
3.5.3 Environment Faults

To display the environmental faults:

1. From the main window, select the **Statistics Menu** or enter **O**. A window is displayed.

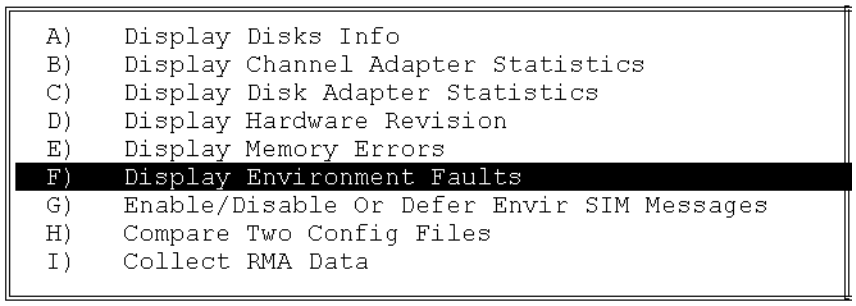


CDA7 5330 version

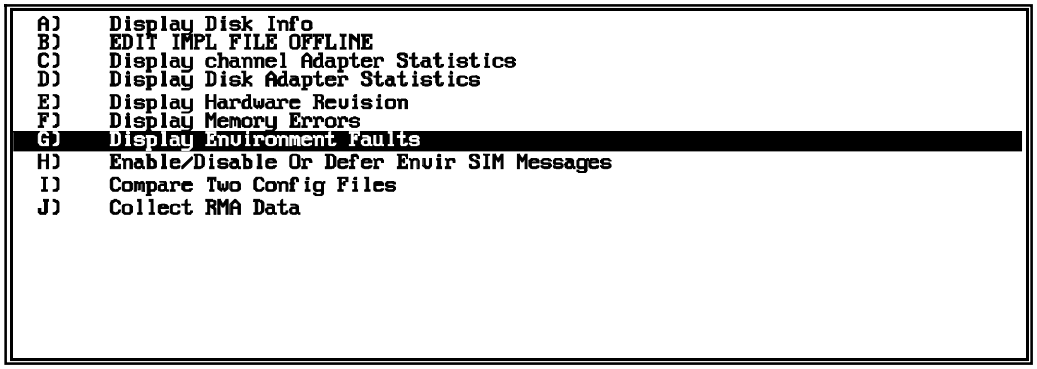


CDA7 5630 version

2. Select Display Environment Faults or enter F.



CDA7 5330 version



CDA7 5630 version

EXAMPLE:

Figure 3-11 shows a typical environment fault display.

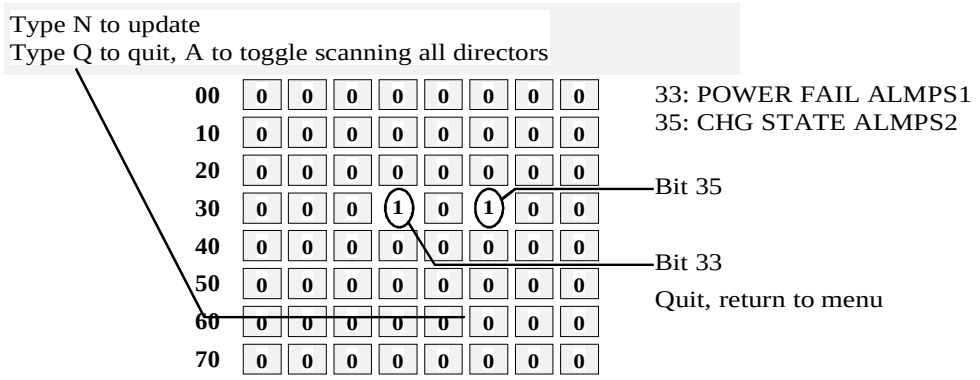


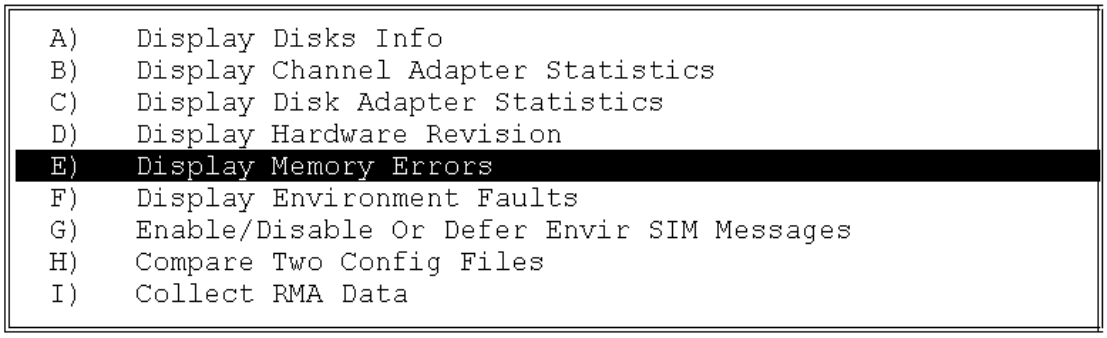
Figure 3-11. Environment Fault Display

❑

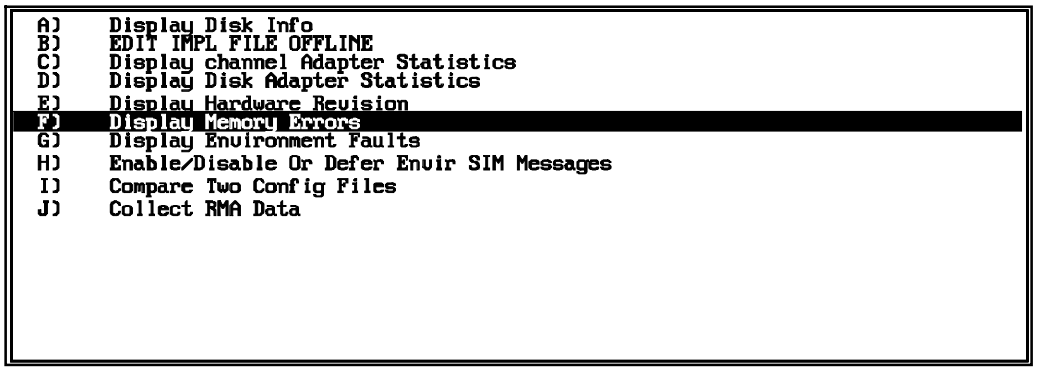
3.5.4 Displaying the Memory Error Map

To display the memory error map:

Select Display **Memory Errors** option in the **Statistics menu** or enter E.



CDA7 5330 version



CDA7 5630 version

The scan start date is displayed as follows:

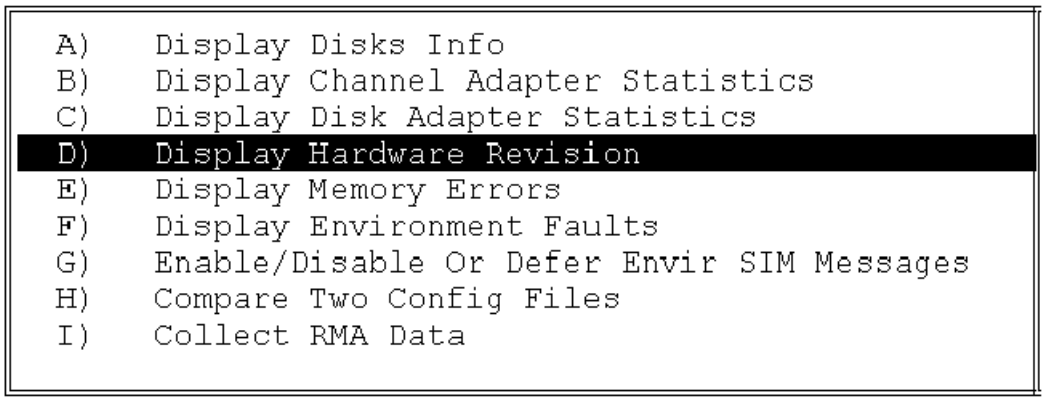
```
DISPLAY MEMORY ERRORS MAP

Use data Since    M M/DD/YY    HH/MM/SS
```

```
                DISPLAY MEMORY ERRORS MAP

                Use data Since    MM/DD/YY    HH/MM/SS

DIR  Symp  Address  Bit  Slot  Bank  Date  Time  Count  Pipe
---------------------------------------------------------------
#          ***      *    **
#          ***      *    **
#          ***      *    **
```

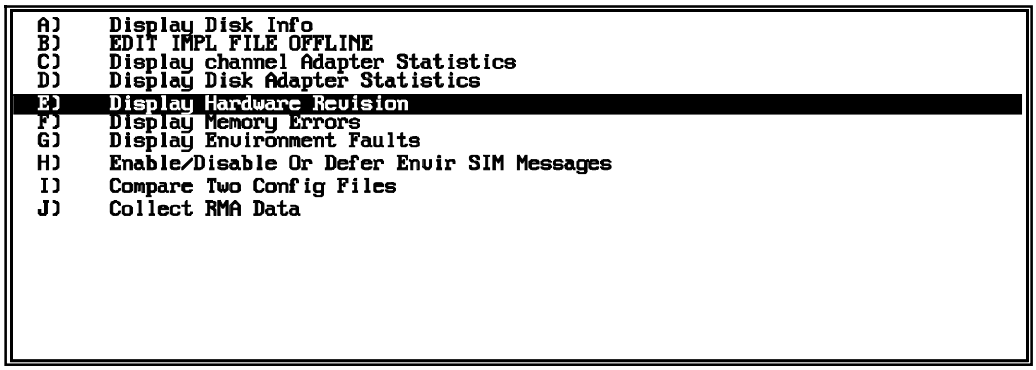
3.5.5 Displaying the Hardware Status Revision

To display the hardware status revision:

Select Display Hardware Revision option in the Statistics menu or enter D.



CDA7 5330 version



CDA7 5630 version

The following screen is an example of the information you can display.

Hardware Revision

DIR	PN	REV	SN	WO	HWR
DA-01	200-811-909	F19	B1052421362	0	905
DA-02	.....	F19	.....	0	905
SA-15	200-881-902	E02	05914409818	0	906
SA-16	.....	E01	.....	0	906

MEMORY BOARDS

MEM	PN	REV	SN	WO
03	200-828-903	A4	10591420096	
OC	200-828-903	A4	****	

3.6 Log Files

You can consult and copy log files from your Lap-Top. For more information, refer to the appropriate *CDA 7 5330 Product Manual or CDA 7 5630 Product Manual*. There are two product manuals one for 9 GB disks and one for 18 GB disks. See the *Bibliography* in the *Preface* for the reference numbers.

3.6.1 Types of Log Files

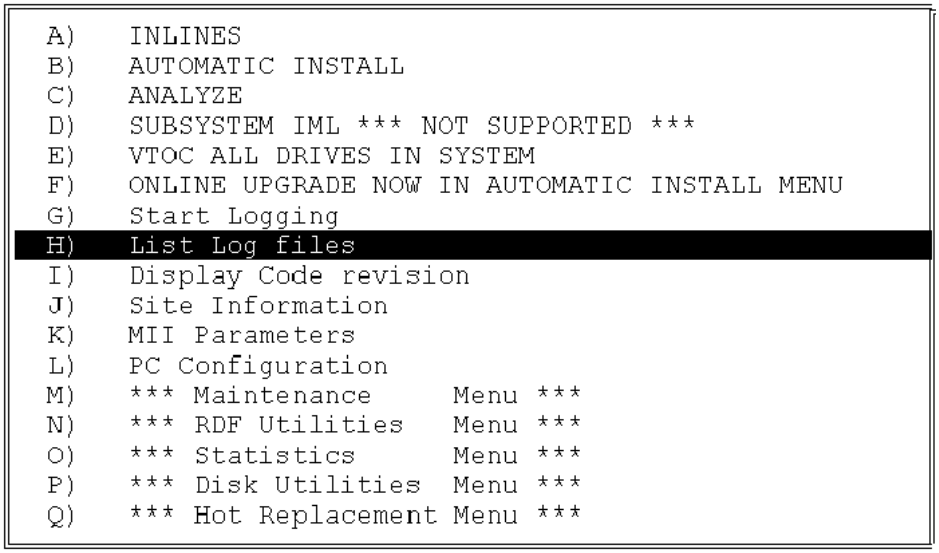
The types of Log files you can display are listed below:

`LOG_ALL.LOG`	Entered in the Lap-Top. When it is full, it is renamed in LOG_00.LOG, then LOG_01.LOG, etc.
`DISKINFO.LOG`	displays the disk-module information.
`CA_STAT,DA_STAT`	Result of Display Channel (or Disk) Directors command in the Statistics menu.
`MEM_ERRS.LOG`	Single and multiple memory errors detected by the Directors. Created with the Display Memory Errors command in the Statistics menu.
`ENVFAULT.LOG`	Result of the Display Environment Fault command.
`REVISION.LOG`	Result of the Display Code Revision command.
`SYMPFILE.LOG`	Error codes.

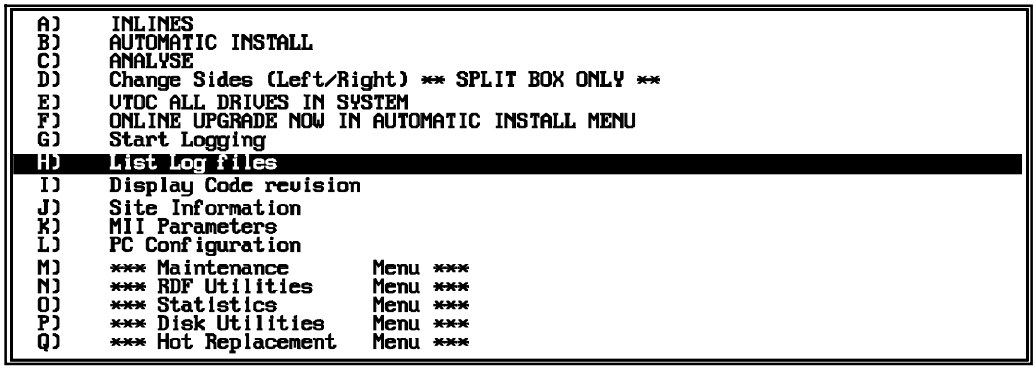
3.6.2 Displaying the Log Files

To display the main log files:

1. Display the list of log files: highlight the **List Log Files** option in the main menu or enter **H**.

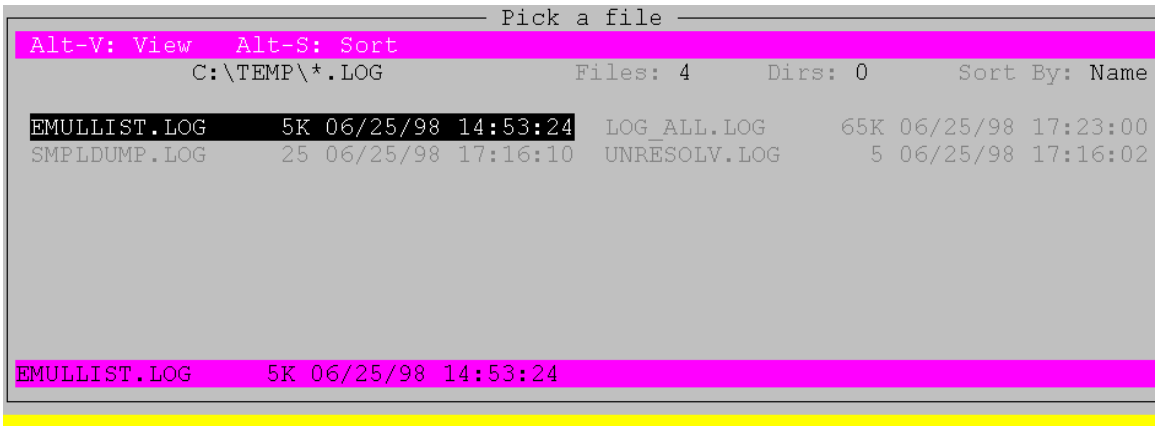


CDA7 5330 version



CDA7 5630 version

2. In the following window, select the specific file you want to display.



3. Press <ENTER>.

3.6.3 Copying a Log File

If the files are too large, first use the PKZIP utility which is on the PC disk. For example (with an empty and formatted diskette):

```
C:\SYMM4\>PKZIP A:<target-file>.ZIP <log-file>.LOG
```

For PKZIP/PKUNZIP help:

```
C:\SYMM4>PKZIP<Enter>
C:\SYMM4>PKUNZIP<Enter>
```

Then copy the files:

```
C:\SYMM4>DIR *.LOG <Enter>
C:\SYMM4>COPY<filename>.LOG A: <Enter>
```

4. Parts Catalog

4.1 Overview

This chapter provides a list of part numbers for use in ordering replacement parts for the CDA 7.

4.2 Spare Parts List 5330 (9 GB and 18 GB Disks)

Except for part numbers of the disk modules themselves, these part numbers are common to systems with 9 GB disks and 18 GB disks.

Description	EMC Part number
Disk Module 9 GB	100-815-037, 100-815-043
Disk Module 18 GB	100-815-062
Ultra SCSI Director board	201-277-917, 201-277-927
Ultra SCSI Adapter Board	201-254-900
Fast Wide SCSI Director Board	201-207-917, 201-207-927
Fast Wide SCSI Adapter Board	201-211-903 without/term & term power
Fast Wide SCSI Adapter Board	201-254-900 with switch
Dual Initiator Adapter Board	200-896-917, 200-896-927
Wide Dual Initiator Board	201-809-903
512 MB Memory Board	200-947-924
1 GB Memory Board	200-947-904
Communication Board	200-692-901
Communication Board (Depop)	200-028-900
Front Panel Board	201-260-900
Power Supply Assy.	071-000-077
Battery Box Assy.	100-855-020
EPO Box Assy.	100-855-027, 100-855-051
Front Cage Fan Module Assy.	045-000-038
	Bull Part Number
Ultra SCSI Cable Length	
10 m	91129001-001
20 m	91129002-001
WSP card	76496495-314

4.3 Spare Parts List 5630 (18 GB and 36 GB Disks)

Except for part numbers of the disk modules themselves, these part numbers are common to systems with 18 GB disks and 36 GB disks.

Description	EMC Part number
Ultra SCSI Director Board	201-277-977
Ultra SCSI Adapter Board	201-254-900 (with switch)
Fibre Channel Director Board	200-521-970
Fibre Channel Adapter Board	201-236-907
Dual Initiator Disk Director	200-896-977
Dual Initiator Adapter Board	201-833-903
4-port Remote Link Director (RLD for SRDF)	200-895-974
512 MB Memory Board	201-293-982
1 GB Memory Board	201-293-942
2 GB Memory Board	201-293-922
4 GB Memory Board	201-293-902
Communication Board	200-289-901
PCB, Communication Board	201-289-901
Front Panel Board	201-260-900
Power Supply Assy.	071-000-126
Battery Box Assy.	100-857-021
EPO Box Assy.	100-857-012
Front Cage Fan Module	045-000-038
Rear Cage Fan Module	045-000-037
Drives Cage Fan Module	045-000-062
Fan Assembly	045-000-068
18 GB 3.5 inch Disk	100-845-044
36 GB 3.5 inch Disk	100-845-136
PC - Service Processor NT	090-000-058
DC/DC Converter (for PC)	071-000-089
External Modem (US)	200-900-055
	Bull Part Number
Ultra SCSI Cable Length	
10 m	*91129001-001*
20 m	*91129002-001*
WSP card	*76496495-314*

5. Add-On/Microcode Upgrade

The Add-On procedures are those provided by the BICC (Bull International Intervention Center). The following paragraphs should be treated as guidelines.

Add-Ons or Microcode upgarades are to be performed either by BICC personnel or by accredited persons.

5.1 DPS 7000 Add-on Hardware

The introduction of standard configuration files has greatly simplified Add-Ons. This chapter describes how to perform such an add-on to a CDA 7 cabinet already installed in the configuration. Perform the required operations in the order shown in Figure 5-1.

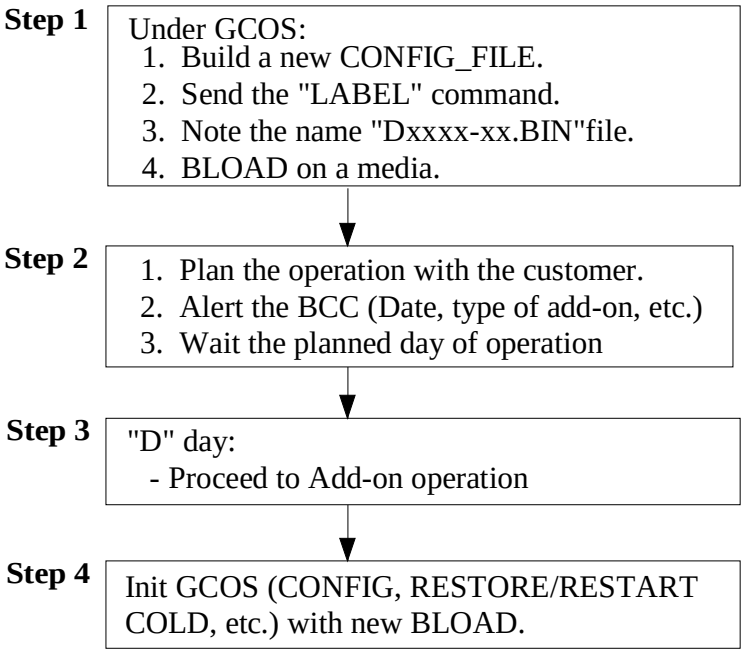


Figure 5-1. Add-On Procedure Overview

5.1.1 Step 1

To estimate the installation time, perform the following operation:

1. Build a new configuration file under **MNCONF** as follows:

```
    S:FGF
......
    F:MNCONF
......
    N:MD <OLDCONF> <NEWCONF> CDA7
```

IMPORTANT:

There are a certain number of standard configurations. In an add-on operation, the rule is as follows:

Config standard XX+Add-On=Config standard YY

Whatever the type of add-on, you will encounter a known configuration.

2. Perform the LABEL command, it displays:

   – the **distribution** of new disks in the Lap-Top configuration,
   – the **name** of the new standard configuration obtained ("BIN" file).

   The following message is displayed:

```
    Lap top configuration dor cda #01

    Name of the bin file is: C4000-20 for 5130 model
                             or  D4000-20 for 5330 model

  MS   * 01  02  03  04  05  06  09  0A  0B  0C  0D  0E
  DEV  * 00  01  02  03  04  05  06  07  08  09  0A  0B
*******************************************************

SA-15A * 20  21  22  23  24  25
     B *                         20  21  22  23  24  25
     C *
     D *
SA-16A * 20  21  22  23  24  25
     B *                         20  21  22  23  24  25
     C *
     D *
*******************************************************

***LABELS for other 10 controllers
```

3. Perform the following two commands:
   - FIRMGEN,
   - BLOAD on a media intended for the next initialization of the new configuration.

   For more information, refer to *Basic Models* in Appendix A, *Software Release and CDA 7 Configurations (9 GB Disks)*, or in Appendix D, *Software Release and CDA 7 Configurations (18 GB Disks)*.

IMPORTANT:
Send the Lap-Top configuration to the Bull Competence Center.

5.1.2 Step 2

Reminder: If you know the type of add-on as well whether any cards are to be moved, estimate the time required for the operation, and calculate the system availability to carry it out. (Additional WSPs, cable installation, CDA subsystem cards and disks, etc.)

NOTE:
In case of Coupled Systems, contact the Bull Competence Center and request assistance with step 3.

5.1.3 Step 3

For coupled system configuration, step 3 takes place with the collaboration of Bull Competence Center. The CDA 7 portion takes place as follows:

1. Copy the new file **IMPL.BIN** to the PC disk.
2. Stop use of the system by GCOS.
3. Disable SA (SCSI Adaptor) and DA (Disk Adaptor).
4. In the main menu, highlight the **Automatic Install** option or enter **B**.
5. Select the **Disk** option and verify configuration.
6. Select the **B=Load and Save** option to validate the new configuration to the subsystem.
7. Enable SA (SCSI Adaptor) and DA (Disk Adaptor).
8. Hand the system back to GCOS.
9. Launch the VTOC command for the new disk (Selective VTOC).

5.1.4 Step 4

The step 4 procedure is as follows:

1. Reinitialize the entire system with the new BLOAD.
2. Any new disk-modules are in NSTD state. Enter a VOLPREP [short] command to assign them the label chosen by your client.
3. Terminate with BLOAD (final)/BLOAD-BACKUP if not already done.

5.2 Microcode Upgrade/Modification

This modification affects the CDA 7 subsystem.

NOTE:
If the modification procedure must be performed in one or more steps, contact the Bull Competence Center.

Microcode Modification

IMPORTANT:
Complete the procedure below **before** contacting the Bull Competence Center.

NOTE:
This procedure can vary slightly according to the revision of the microcode.

1. Under MS-DOS, create a working directory and copy the entire C:\SYMM4 directory into it. The procedure is as follows:

```
C:\SYMM4>CD..
C:\>MKDIR <dirname>
C:>COPY C:\SYMM4\*.* C:\<dirname>
```

2. After taking the appropriate operating precautions, stop subsystem operation.
3. Under MS-DOS, create a New Code directory:

```
C:\SYMM4> mkdir NewCode
```

4. Copy the six diskettes in the **NewCode** directory.
5. Under DOS, go to the **NewCode** directory and enter `install`. Follow the procedure under control of the Bull Competence Center.

A. Software Release and CDA 7 Configurations (9 GB Disks)

This Appendix concerns the CDA 7 with 9 GB disks only.

For the equivalent information for a system with 18 GB disks, see Appendix D.

A.1 Software Level

The software release level is identified according to the following format:

```
XXXX.yy.zz
```

where:

XXXX	is the Base Code Family (4 digits)
yy	is the change number in Emulation Code (2 digits)
zz	is the change number in Lap-Top Code (2 digits)

EXAMPLE:

```
SOFTWARE LEVEL
5263.46.32
```

❑

A.2 Bin Files

For the 9 GB disks, the following BIN files are available:

5300-9M:

D0100-20.BIN	8 HDAs Mirrored (4 M1 + 4 M2)
D0200-20.BIN	16 HDAs Mirrored (8 M1 + 8 M2)
D0300-20.BIN	24 HDAs Mirrored (12 M1 + 12 M2)
D0400-20.BIN	32 HDAs Mirrored (16 M1 + 16 M2)

5300-9S

D2000-20.BIN	8 HDAs RAID-S (6 Data + 2 Parity)
D3000-20.BIN	12 HDAs RAID-S (9 Data + 3 Parity)
D4000-20.BIN	16 HDAs RAID-S (12 Data + 4 Parity)
D5000-20.BIN	20 HDAs RAID-S (15 Data + 5 Parity)
D6000-20.BIN	24 HDAs RAID-S (18 Data + 6 Parity)
D7000-20.BIN	28 HDAs RAID-S (21 Data + 7 Parity)
D8000-20.BIN	32 HDAs RAID-S (24 Data + 8 Parity)

A.3 CDA 7 5330 Disk Configurations

A CDA 7 5330 cabinet is organized into from one to four physical groups (0 to 3) of eight physical disks each. Each physical group may be:

- six RAID-S devices (8 physical disks), or
- four MIRROR devices (8 physical disks).

The initial cabinet configuration must be:

1. all physical RAID-S groups, or
2. all physical MIRROR groups.

The basic models are designated by **EMC5330 rmns** and the corresponding binary file is: **Drmns-xy.Binary** where:

r	is the number of physical half RAID-S groups (4 physical disks)
m	is the number of MIRROR physical groups
n	number of NO-MIRROR physical groups without spare
s	number of NO-MIRROR physical groups with one spare
x	is the number of SCSI adapters (2 or 4)
y	is the coding (0 to Hex. F) of the coupled physical groups (0= for CDA Binary files)

EXAMPLE 1:

Basic Model: CDA5330 with binary file D0200-20 (8 mirror groups)

- no physical RAID-S groups,
- two physical MIRROR groups.

❑

EXAMPLE 2:

Basic Model: CDA5330 with binary file D3000-20 (9 Raid-S)

- three physical RAID-S groups,
- no physical MIRROR groups.

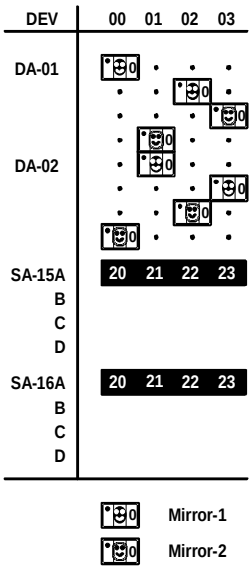
❑

A.4 Basic Models

A.4.1 MSPD038-0000: 4 Mirror

8 physical disk drives **4 logical disks** **Cache: 2*512 MBytes**

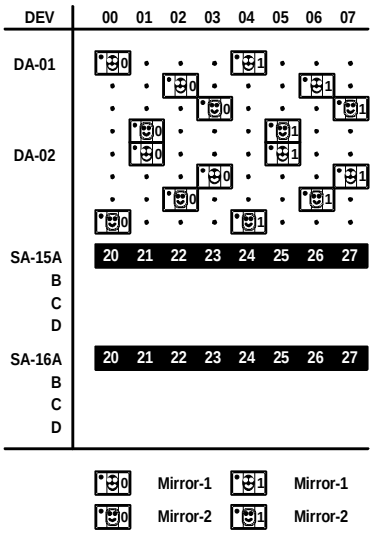
Binary file: D0100-20



A.4.2 MSPD039-0000: 8 Mirror

16 physical disk drives 8 logical disks Cache: 2*512 MBytes

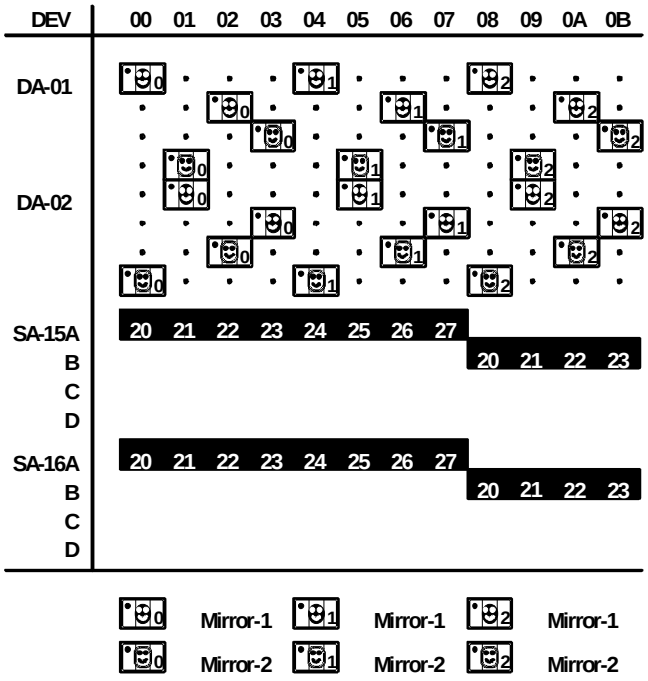
Binary file: D0200-20



A.4.3 MSPD040-0000: 12 Mirror

24 physical disk drives **12 logical disks** **Cache: 2*512 MBytes**

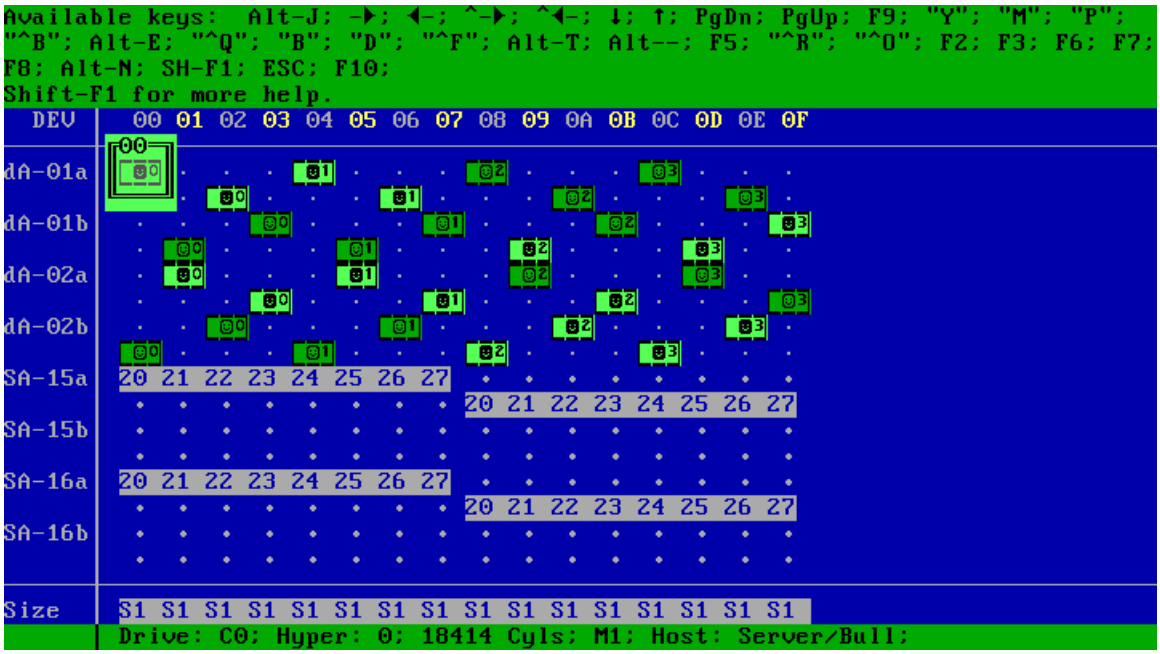
Binary file: D0300-20



A.4.4 MSPD041-0000: 16 Mirror

32 physical disk drives **16 logical disks** **Cache: 2*512 MBytes**

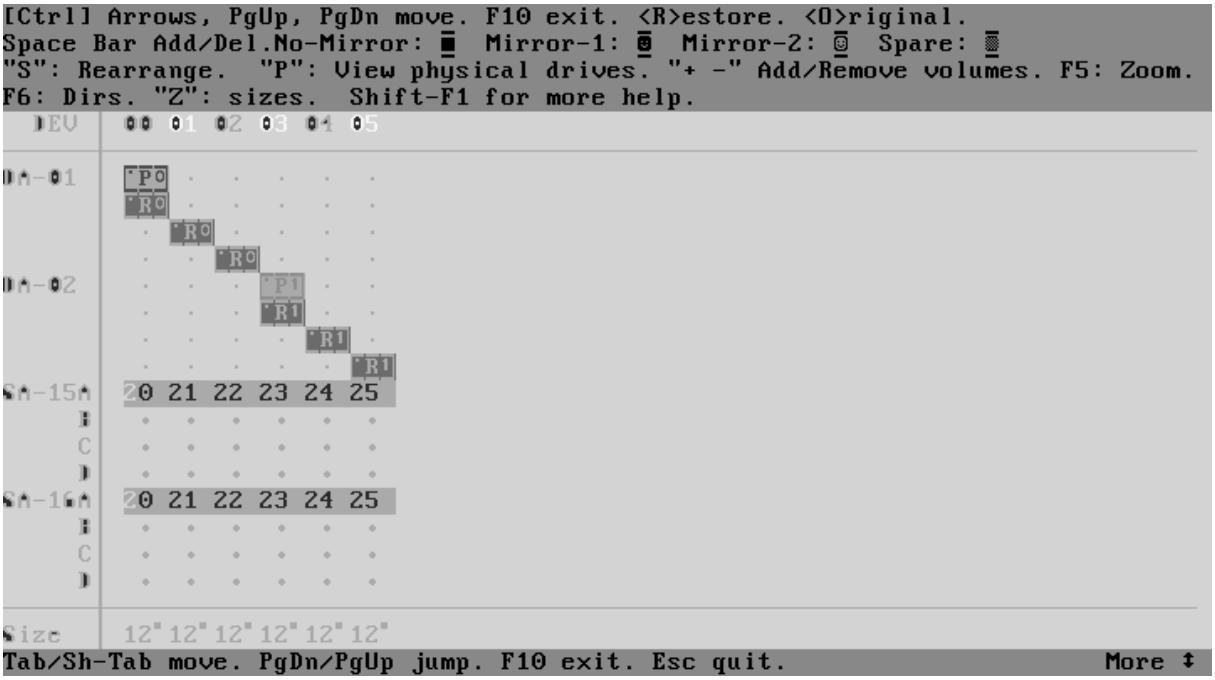
Binary file: D0400-20



A.4.5 MSPD042-0000: 6 RAID-S

8 physical disk drives **6 logical disks** **Cache: 2*512 MBytes**

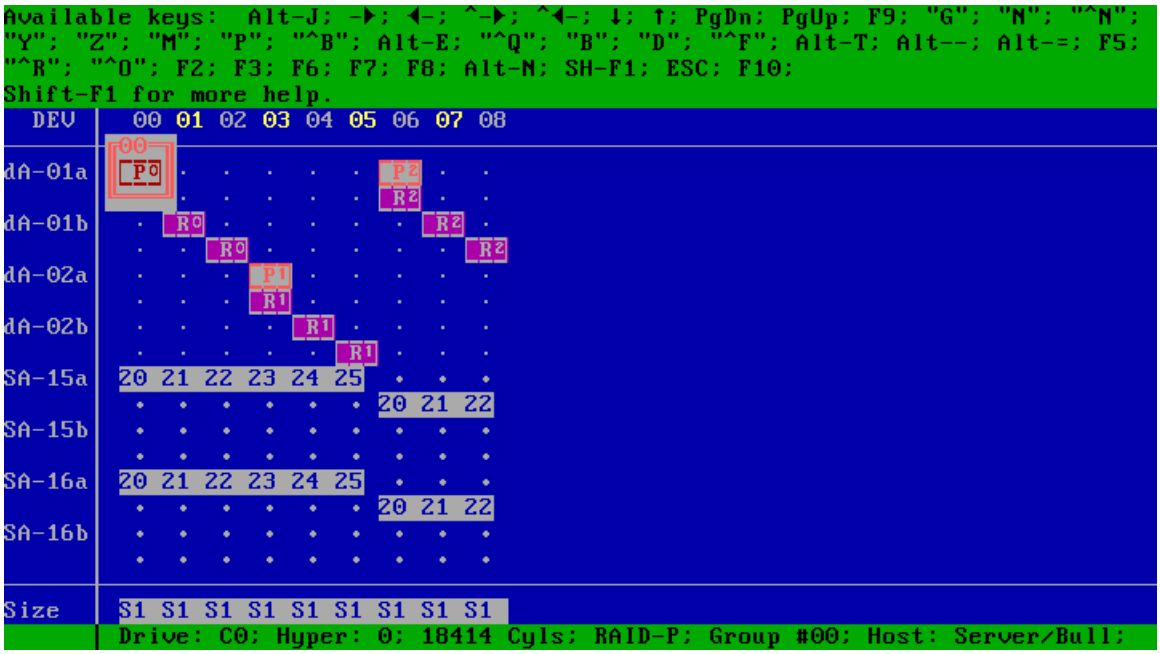
Binary file: D2000-20



A.4.6 MSPD039-0000: 9 RAID-S

12 physical disk drives **9 logical disks** **Cache: 2*512 MBytes**

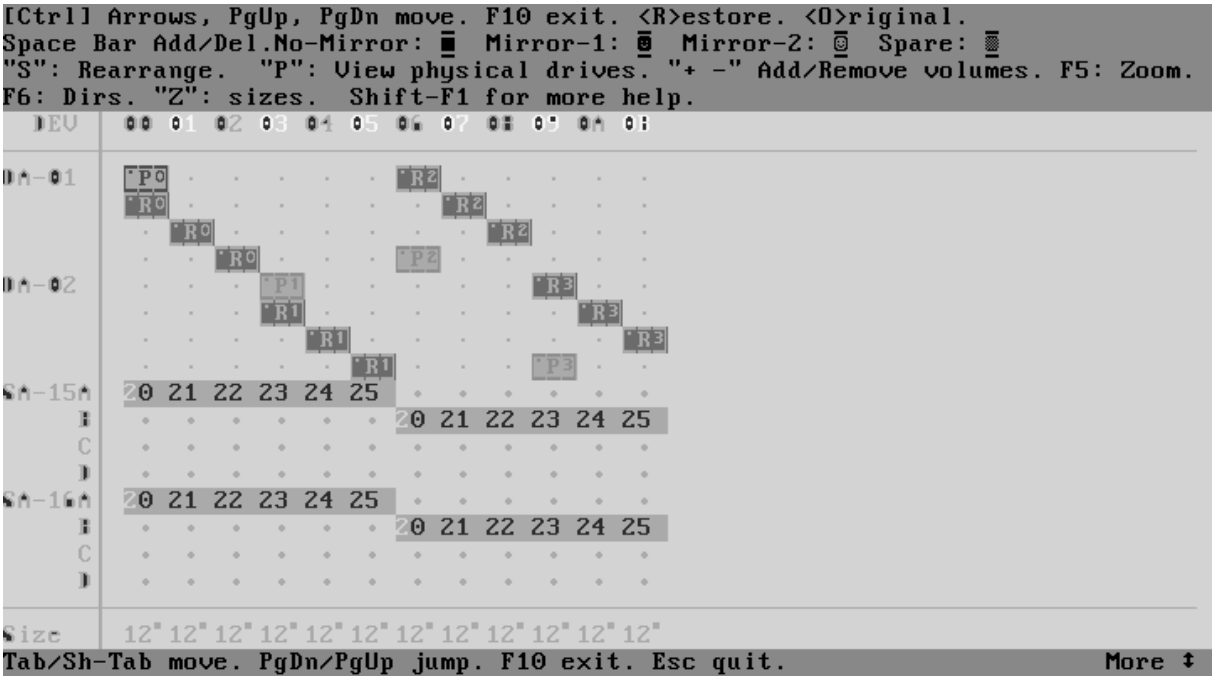
Binary file: D3000-20



A.4.7 MSPD040-0000: 12 RAID-S

16 physical disk drives **12 logical disks** **Cache: 2*512 MBytes**

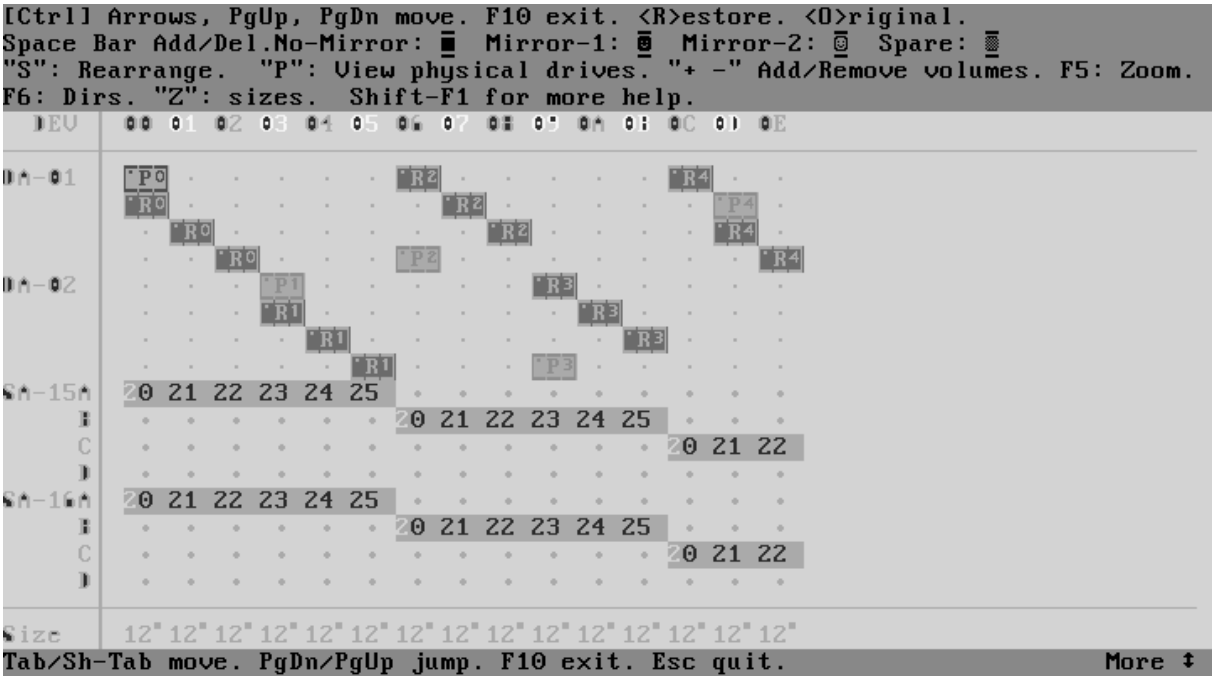
Binary file: D4000-20



A.4.8 MSPD041-0000: 15 RAID-S

20 physical disk drives **15 logical disks** **Cache: 2*512 MBytes**

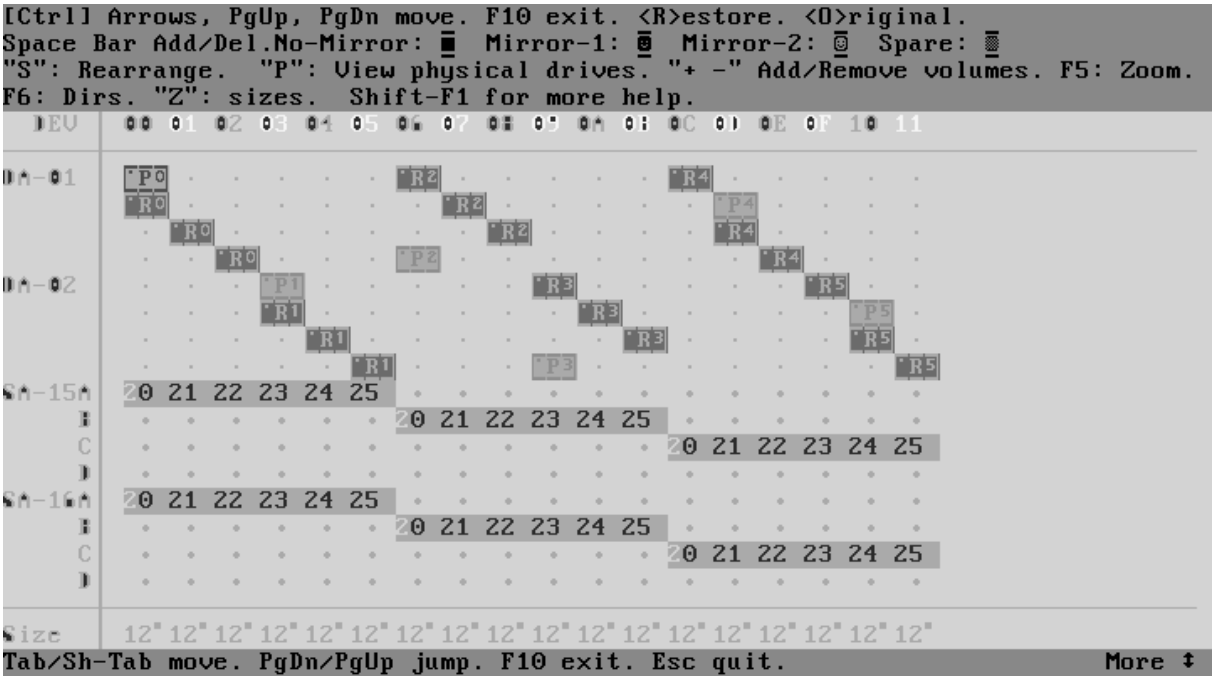
Binary file: D5000-20



A.4.9 MSPD042-0000: 18 RAID-S

24 physical disk drives 18 logical disks Cache: (1*1024 + 1*512) MBytes

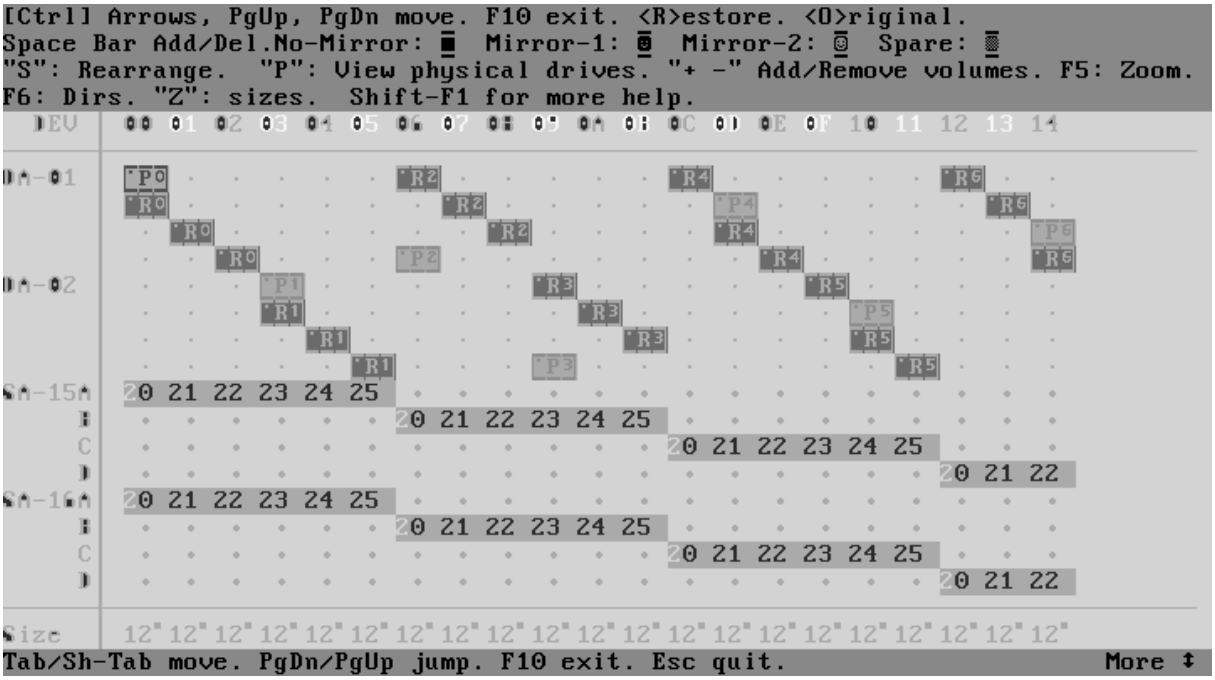
Binary file: D6000-20



A.4.10 MSPD043-0000: 21 RAID-S

28 physical disk drives **21 logical disks** **Cache: (1*1024 + 1*512) MBytes**

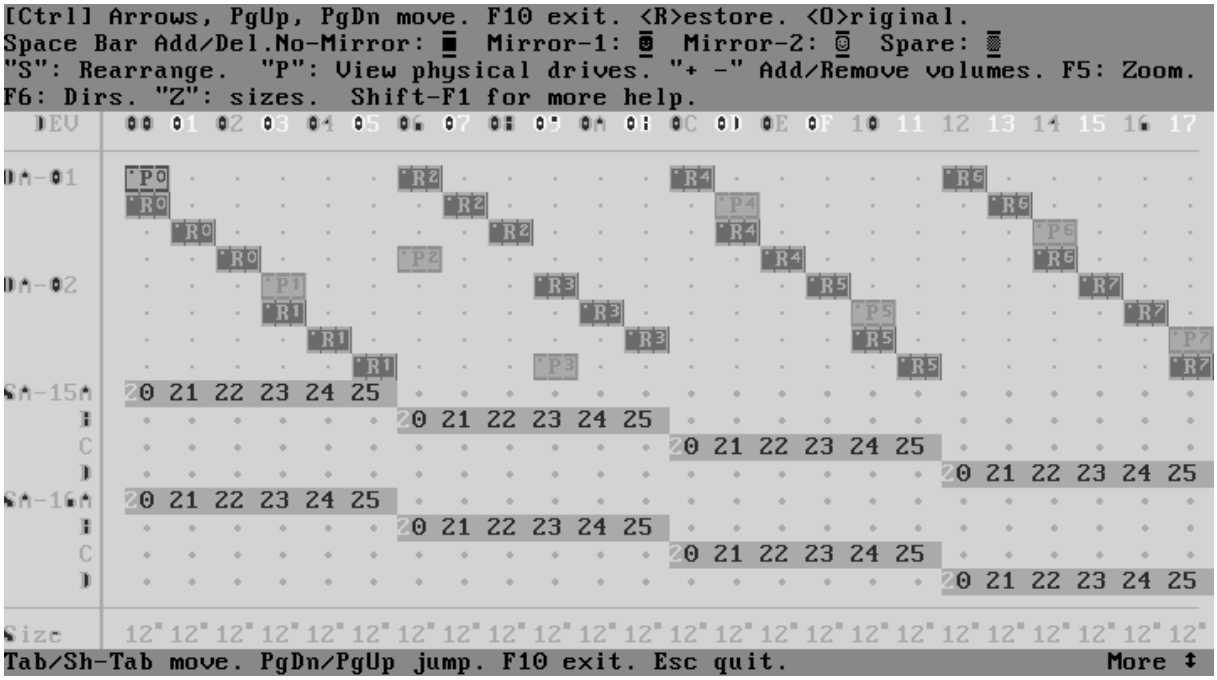
Binary file: D7000-20



A.4.11 MSPD044-0000: 24 RAID-S

32 physical disk drives 24 logical disks Cache: (1*1024 + 1*512) MBytes

Binary file: D8000-20



B. Error Report (GCOS 7 PRLOG)

This Appendix concerns the CDA 7 with either 9 GB disks or 18 GB disks.

B.1 Channel Exceptions

At the top of the PRLOG you find an area called **History report for Channel Exception**. The channel exception logging allows you to define the channel exception reasons and at the same time information on the cause of this state.

The format of the 16 bytes at the Address is as follows:

Logging LC#0 format:

Bytes 400-401	Verstab	WSP Firmware revision level
Bytes 402-403	RFU	
Byte 404	Type	
Byte 405	Reason	1st aborted Channel process
Byte 406	Job Number	
Byte 407	Process Number	
Byte 408	Type	
Byte 409	Reason	2nd aborted Channel process
Byte 40A	Job Number	
Byte 40B	Process Number	
Byte 40C	Type	
Byte 40D	Reason	Aborted Driver process
Byte 40E	Job Number	
Byte 40F	Process Number	

If type equal 10 it is the auto-termp.

The "Reason" list of Termp code on abnormal execution of GPOS primitive are:

0x01	RC_RQTM	Request timer
0x02	RC_DELRQT	Delete timer
0x03	RC_SEPM	P operation
0x04	RC_SEPMTST	P operation test
0x05	RC_SEVM	V operation
0x06	RC_NOTIFY	Notify (attention)
0x07	RC_GETDATA	
0x08	RC_PUTDATA	
0x09	RC_GETCMD	
0x0A	RC_ENDCB	Terminaison
0x0B	RC_RESGET	
0x0C	RC_CRCTRL	Create controller
0x0D	RC_CRSERV	Create server
0x0E	RC_TERMP	
0x0F	RC_INITSEM	Semaphores initialization
0x10	RC_STARTP	Start process
0x11	RC_SETCTRL	
0x12	RC_IDS	Automatic Detailed Status
0x13	RC_SEPMT	P operation with timer
0x14	RC_DLSERV	Delete server
0x15	RC_SCTDESC	Descriptors SCT
0x16	RC_GETSCT	Primitive getsct

The "Reason" list Termp code on abnormal execution detected by a channel process are:

0x50	DEV_TYPE_UNKNOWN	Device type unknown
0x51	ERR_MES_P0_DRV	Message error from driver or P0
0x52	ERR_CS_TESTSEM	No more used
0x53	ERR_CS_CCE	Internal error, the return code of cce processing is not correct.
0x54	ERR_CS_DP_SUPSCSI	Internal dp_supscsi function error
0x55	ERR_RC_CMDSCSI	Internal cmdscsi function error
0x56	ILLEGAL_TAG	Tag message error detected
0x57	TAG_NOT_EXPECTED_HERE	Tag unexpected
0x58	ILLEGAL_TAG_IN_MS_IN_CNL	Tag error detected
0x59	ILLEGAL_CCE_CODE	Illegal CCE from P0 received.
0x5A	ILLEGAL_CMD_SCSI_ASKED	Internal error, this SCSI command is unexpected
0x5B	ILLEGAL_MSG_SCSI_ASKED	Internal error, this SCSI message is unexpected
0x5C	ILLEGAL_SCSI_REQUEST	No more used
0x5D	SCSI_COMMAND_ERROR	No more used
0x5E	TIMER_START_SUP_EXPECTED	
0x5F	TIMER_DELAY_SUP_EXPECTED	

0x60	TIMERQUEUE_EXPECTED	
0x61	TIMERBUSY_EXPECTED	
0x62	ILLEGAL_PAGE_SELECTED	Internal error, mode select page not foreseen.
0x63	ERR_DRIVER_UNKNOWN	This driver error is unexpected
0x64	RC_GPOS_UNKNOWN	Return code GPOS unknown or unexpected.
0x65	SENDER_UNKNOWN	Message from sender unknown
0x66	SENDER_NOT_EXPECTED	This message is not expected from this sender
0x67	SRC_SID_UNKNOWN	Source ID unknown
0x68	SRC_SID_NOT_EXPECTED	Source ID unexpected
0x69	ILLEGAL_DEVICE_STATUS	Status unexpected
0x6A	SENSE_CODE_UNKNOWN	Additional sense code (SCSI) incorrect or unknown.
0x6B	ILLEGAL_SENSE_KEY	Sense key undefined (SCSI)
0x6C	ILLEGAL_ERROR_CODE	Sense code undefined (SCSI)
0x6D	ILLEGAL_ERROR_CLASS	No more used
0x6E	SCSI_PARAMETERS_ERROR	Internal error, incorrect parameter in SCSI command
0x6F	ILLEGAL_P0_REQUEST	
0x70	ILLEGAL_P0_REQUEST_TYPE	
0x71	ERR_STATEDEV	
0x72	TERMP_DRIVER	Driver did termp.
0x73	DELETE_SERVER	Abnormal delete server processing.
0x74	NO_REVISION_LEVEL	WSP revision is 00 00 = illegal.
0x75	ILLEGAL_ID_TAPE_POSITION	
0x76	ILLEGAL_PARTITION_ID	The partition ID received is illegal.
0x77	QUEUEP0_OVERFLOW	
0x78	ILLEGAL_ASC	Additional Sense Code illegal or unknown
0x79	ILLEGAL_ASCQ	Additional Sense Code qualifier illegal or unknown
0x7A	ILLEGAL_SVID	Server Id illegal
0x7B	TIMEOUT_ABORT	Time out on abort message request.
0x7C	ILLEGAL_COM_NB	Error driver: Command number incorrect
0x7D	ERROR_ABORT	Abort SCSI command incorrect
0x7E	UNEXPECTED_ DRIVER_ERR	
0x7F	TOO_MANY_RST_BUS	Too many reset reported by the device
0x80	TOO_MANY_DRV_RST	Too many reset reported by WSP driver
0x81	ERR_NOT_EXPECTED	

0x82	NO_SYC_PARAMETER	No SYC parameter in the table.
0x83	LUN_NOT_PRESENT	ID2, LUN # 0 mandatory, is not present
0x84	UNKNOWN_CONFIG	Configuration is neither RAID-1 nor RAID-5
0x85	UNKNOWN_MESSAGE	Monitoring Process Message received is unknown
0x86	UNKNOWN_SP	No reply from SP during test switch LUN
0x87	LUN#8_NOT_PERMIT	LUN # 8 not permit in RAID-1 configuration

The "Reason" list Termp code on abnormal execution detected by a driver process are:

0x20	ERR_PIOPROC	Abnormal value in pioproc pointer
0x21	ERR_INMESS	Non identified Message
0x22	ERR_VALTAG	Unknown Type of message
0x23	QUEUE_MESS_FULL	Message Queue is full
0x24	PROC_OVF	The number of the process channels under execution is too big
0x25	DRIV_OVF	driv[] table overflow
0x26	VRAM_OVF	data overflow in VRAM
0x27	SCRIPT_OVF	script overflow in VRAM
0x28	ERR_SCHEDULE	scheduler entry number incorrect
0x29	ERR_SCRIPTLCA	SCRIPT Error parity detected by the CA
0x2A	ERR_DATALCA	Buffer data error parity detected by the LCA
0x2B	ERR_VRAMLCA	access VRAM error parity detected by the LCA
0x2C	ERR_DIFFSENS	Single ended device type connected to the SCSI bus
0x2D	ERR_UNKNOWN	Unknown LCA Interrupt
0x2E	ERR_MESSLEN	Message (out) length too long.
0x2F	ERR_CONFIG	Transfer configuration error.
0x30	ERR_MESSIDENT	Identify message error.
0x31	ERR_MESSREF	Configuration message error.
0x32	UNEXPECTED_ITNCR	T NCR without command under process on the device.
0x33	ITNCR_LOOP	Loop in IT sequence

For more information about the logging area, refer to the technical note DES-NT 209.

B.2 I/O Errors

The PRLOG contains an area dedicated to each logical device named **History report for MSxx FSA**. This area reports all types of I/O errors such as: NT with marginal conditions, ASR, ANR, AMR) and the Attentions.

NOTE:
Some I/O errors and attentions, reported by WSP-A, are filtered by GCOS 7 (AVAIL & PIARS) and are not displayed in the PRLOG.

B.3 Disk PSB/DSB Termination Report

PSB and DSB terminations from DSB0 to DSB15 are listed below, see PA1605 (FSA) for details.

The DSBs beyond DSB15 are specific to devices. The values are given here for WSP and disc:

PSB1	
bit 0	Modifier Always 1
bit 1	Status Control (Origin of status)
bit 2	Channel Program Check (Programming Error)
bit 3	Detailed Status Pending
bit 4	Data Error
bit 5	Hardware condition: Hardware fault
bit 6	Operational Check
bit 7	Device Condition
PSB2	
bit 0	Channel Interface Parity Error
bit 1	Header Field Missing
bit 2	Header Field Unrecoverable error
bit 3	Physical Block Field Missing
bit 4	Physical Block Unrecoverable
bit 5-7	RFU
PSB3	
bit 0	Unequal Length Check
bit 1	Device or Path Reserved
bit 2	RFU
bit 3	Write Protect
bit 4	Operating Mode Violation
bit 5-6	RFU
bit 7	Physical End of File

STANDARDIZED DETAILED STATUS

DSB0

bit 0	Illegal command
bit 1	Illegal count
bit 2	Invalid data
bit 3	Illegal sequence
bit 4	Resume error
bit 5	RFU
bit 6	RFU
bit 7	Programmed release

DSB1

bit 0	Underrun/Overrun (for WSP the meaning is: device busy longer than expected)
bit 1	Device not initialized
bit 2	Device Fault
bit 3	Device Off-line
bit 4	Device Interface error
bit 5	RFU
bit 6	Device Standby
bit 7	Device Time-out

DSB2

bit 0	No More Space Available
bit 1	Extra Byte (Last byte not valid)
bit 2	Partition Overflow
bit 3-5	RFU
bit 6	Manufacturer Defect List(Error occurred)
bit 7	Current Defect List "

DSB3: Partition Identifier, 0xFF if no block has been accessed during channel program execution.

DSB4 to **DSB7**: Offset in data blocks from the beginning of the partition to the block error or last block accessed during channel program.

DSB8

bit 0	Recovered Error With Retries
bit 1	Recovered Error With ECC Correction
bit 2	Automatic Reassign
bit 3	Recovered Device Fault
bit 4	Recovered Underrun/Overrun
bit 5	Reassign Required
bit 6	Header/Physical block fielderror
bit 7	RFU

DSB9

bit 0-1	RFU
bit 2	Device Explicitly Seized
bit 3	Device Implicitly Seized
bit 4	Device Was Reserved
bit 5-7	RFU

DSB10 to **DSB12**: Current Operating Mode

DSB13 Type of Device:
0x00=Illegal Value (Device unknown)
0x01=ST42400N; 2,1Gbytes
0x02=ST41600N; 1,4Gbytes
0x03=XT-4380S; 320Mbytes
0x04=XT-8760S; 680Mbytes
0x06=DFHSS2E ; 2,1Gbytes
0x07=XP32150W ;2,1Gbytes
0x08=XP34300WD;4,3Gbytes
0x80=EMC5130, 4,2 Gbytes
0x81= EMC5330, 9 Gbytes
0x8A=Disk Array 7000, 4 Gbytes
0x8B=Disk Array 7000, 5 Gbytes
0x8C=Disk Array 7000, 9 Gbytes
0x8D=Disk Array 7000, 12 Gbytes

DSB14 to **DSB15** Firmware Revision Level

CONTROLLER/DEVICE STATUS

DSB16-DSB27	Last failed SCSI command. These bytes report the last failed command descriptor block as described in SCSI specification (ANSI X3T9.2/86).
DSB28	Valid field. This byte reports the first byte of extended sense table as described in SCSI specification (ANSI X3T9.2/86)
DSB29	bit 0 tape mark detected bit 1 EOM bit 2 ILI (incorrect length indicator) bit 3 mbz. bit 4-7 Sense key
0x0	No sense information.
0x1	Recovered Error.
0x2	Device not ready.
0x3	Medium Error
0x4	Hardware Error.
0x5	Illegal request
0x6	Unit attention.
0x7	Data protect.
0x8	Blank check.
0x9	Vendor unique sense key error.
0xA	Copy Aborted (not used)
0xB	Aborted command.
0xC	RFU
0xD	Volume overflow.
0xE	RFU
0xF	RFU
DSB30	Additional sense code
DSB31	Additional sense code qualifier
DSB32-DSB35	Information bytes: Depend on DSB[28] to [30] values If DSB[28] to [30] is not equal to "70 01 5D": the information bytes contains a value which represents the number of unprocessed blocks or bytes of data resulting from check condition status for the read,write commands. If DSB[28] to [30] equals "70 01 5D": the information bytes contain a value which represents the Degraded mode event: DSB[32], DSB[33]: SP Error Code like Unsolicited event log messages. Refer to **Unsolicited Event Log Messages** in this document. DSB[34]: LUN number (0xFF if CRU is not a member of a LUN) DSB[35]: CRU Type.
DSB36-DSB39	Execution time of the CP between connect received to termination. (Hexadecimal value in microseconds)

DSB40	SCSI Controller Type: 0x00: MSP 0x10: WSP 0x11: WSP-R 0x12: WSP-B
DSB41-DSB44	Complementary device type revision level If Device Type= 06 IBM disks -->FW Disks
DSB45	Degraded Mode Information byte: If Device type = 80 or 81 (EMC) . 0x00 : Normal Mode. 0xXX : Degraded Mode: 0xFF= One or both WSP SCSI termpwr fuse are blown (see details in DSB104-107) 0x60 = A physical disk configured as Dynamic spare has been successfuly invoked 0x61 = A Source-Target volume pair has been successfuly resynchronized. 0x62 = A Source-Target volume pair has been successfuly resynchronized. 0x63 = Disk adapter failure. 0x65 = An Unsynchronized Source-Target volume pair has started to resynchronize. 0x66 = A physical disk configured as a Dynamic Spare has been invoked for SRDF Secondary volume. 0x70 = Temperature fault 0x72 = Environmental fault. 0x73 = One volume of Source-Target volume pair has been detected as NOT READY. 0x74 = One volume has been detected as write disable. 0x75 = SRDF source / target no longer synchronized. 0x76 = EMC Service processor did not check in with directors. 0x77 = EMC Service processor was unable to call Customer center. 0x78 = Reprogramming 12v remained On and should have turned Off. 0x79 = Cable Missing (Environmental cable is not detected). 0x7A = AC line problems. 0x7B = Battery high state was not detected as expected. 0x7C = Latched envirronmental alarms were detected. 0x7E= Verification process failure 0x7D = SRDF link problem. 0x7E = SRDF link restored. 0x7F = Service processor successfully called the Customer Center.

DSB46	Vendor Identification 0x00 illegal code. 0x01 SEAGATE 0x03 MAXTOR 0x04 IBM 0x06 BULL 0x08 QUANTUM
DSB47	0x00 illegal code 0x01=ST42400N; 2,1Gbytes 0x02=ST41600N; 1,4Gbytes 0x03=XT-4380S; 320Mbytes 0x04=XT-8760S; 680Mbytes 0x06=DFHSS2E ; 2,1Gbytes 0x07=XP32150W ;2,1Gbytes 0x08=XP34300WD;4,2Gbytes 0x80= EMC5130, 4,3 Gbytes 0x81= EMC5330, 9 Gbytes 0x8A= Disk Array 7000, 4 Gbytes 0x8B= Disk Array 7000, 5 Gbytes 0x8C= Disk Array 7000, 9 Gbytes 0x8D= Disk Array 7000, 12 Gbytes
DSB48-DSB51	Device firmware revision level as returned by the device. (4 ASCII characters)
DSB52-DSB63	Current SCSI command. These bytes report the current command descriptor block as described in SCSI specification (ANSI X3T9.2/86)
DSB64	Device Status 0x00 Good. 0x02 Check condition. 0x08 Busy. 0x18 Reservation conflict.DSB109
DSB65	Driver Status (err_driv) 0x00 NOERR_DRV 0x01 SELECTION_TIMOUT 0x80 RESET_BUS 0xAC ABORT_COMMAND
DSB66	Message in. Last message in on SCSI bus 0x00 Command complete 0x01 Extended Message 0x02 Save Data Pointer 0x03 Restore pointer 0x04 Disconnect 0x07 Message reject 0x8X Identify

DSB67	Message out. Last message out on SCSI bus 0x01 Extended message 0x05 Initiator detected error 0x06 Abort 0x07 Message reject 0x08 No operation 0x09 Message parity error 0x0C Bus device reset 0x8x Identify 0xCx Identify
DSB68-DSB71	Last event on SCSI bus
DSB72	File termp code. This byte gives an internal source code of file which caused the termp (terminate process) condition.
DSB73	Order termp code in file. This byte gives an internal order code inside file which caused the termp (terminate process) condition.
DSB74	GPOS return code
DSB75	GPOS return code if primitive "IDS" is unsuccessfully executed.
DSB76	GPOS return code if primitive "ENDCB" is unsuccessfully executed.
DSB77	Driver first response code if 2 responses (first_err). 0x00 NOERR_DRV 0x02 GENERAL_TIMOUT 0x03 PHASE_MISMATCH 0x04 UNEXPECTED_PHASE 0x05 UNEXPECTED_DISC 0x06 PARITY_ERR 0x07 UNEXPECTED_MESSAGE 0x08 UNEXPECTED_LENGTH 0x09 INITIATOR_SELECT 0x0A ILLEGAL_INST 0x0B WATCHDOG_TIMOUT 0x0C BUS_FAULT 0x0D HOST_PARITY_ERR 0x0E SCSI_GROSS_ERROR 0x0F IT_SCSI_UNKNOWN 0x10 IT_DMA_UNKNOWN 0x11 IT_PROG_UNKNOWN 0x12 ABORT_NCR 0x13 REJECT_MESSAGE 0x14 HANDSHAKE_TIMOUT
DSB78	RFU
DSB79	if DSB79=0xFF :error in endcb processing, codend was 0.

DSB80-DSB95	DEFINE EXTENT/LOCATE DATA
DSB96-DSB103	Drive serial number
DSB104-DSB107	If (DSB104 = 0xFF) DSB105 = 0x00 DSB106 = 0x00 ou 0x01(Fuse SCSI port0 blown) DSB107 = 0x00 ou 0x01(Fuse SCSI port1 blown) Else if (Device type = 80 or 81(EMC) and DSB[45] not equal to 00) The information bytes contains a value which represents a complementary Degraded mode information.
DSB 108-DSB115	RFU
DSB116	Error type 0x01 air_error 0x02 rstrecov_successful but error in recovery. 0x03 rstrecov_timeout 0x04 rstrecov_bsy_nrdy (busy or not ready after reset) 0x05 rstrecov_fault (device fault on retry command) 0x06 rstrecov_reserv (reserved after reset) 0x07 rst_unk_err 0x08 rstrecov_fetchcce_err (recovery err during fetch_cce) 0x09 rstrecov_ok 0x0A endcb_modsel_err 0x0B endcb_seize_err 0x0C unlock_recov_err 0x0D arc_test_ok 0x0E arc_test_ko 0x0F reserv_after_chkcond_extd 0x10 modsel_chd 0x80 endcb_release_err: 10xx xxxx =>xx xxxx (compl. err)

If DSB116 different 0 and different 1:

DSB117	err_driver.
DSB118	device status
DSB119	Skc
DSB120	ASC
DSB121	ASCQ

If DSB116 equal 1 (AIR error):

DSB122	err_driver
DSB123	device status
DSB124	Skc
DSB125	ASC
DSB126	ASCQ
DSB127	If (Device type= 8A or 8B or 8C or 8D and DSB[127] = zyyy yyyy; if DSB 127 (yyy yyyy) not equal 0 --> reconfiguration through FGF is needed z = 0: the Disk Array 7000 mode seen from WSP is REDUNDANT MODE (2 Storage Processors allocated for DPS 7000). Default value: REDUNDANT. z = 1: the Disk Array 7000 mode seen from WSP is NON REDUNDANT MODE (1 Storage Processor allocated for DPS 7000) yyy yyyy: 0x7E= Surveillance process failure 0x7D= Time-out Connect (SP failed or SCSI cable disconnected) 0x7C= Time-Out Abort (One driver failed) 0x7B= LUN not assigned to the default SP 0x7A= too many driver reset bus 0x79= too many device reset bus

C. Installing the CDA 7 5330 with Microcode Release 5263

This Appendix concerns **Release 5263** of the Microcode only. This release runs on the CDA 7 with **9 GB disks only**.

The following table shows the relationship Microcode Release <-> Disk Size.

Disks	**Release 5263**	**Release 5264**
9 GB	Yes	Yes
18 GB	No	Yes

If you are using Microcode Release 5264, Appendix E applies (and not Appendix C).

C.1 Before Installation

Before installing the CDA 7:

1. Disconnect AC power supply cable to your machine before doing any work (except for specific hot replacements of elements).
2. Do not switch the system on if the ground conductor is disconnected.
3. Take anti-static precautions (bracelets, anti-static packaging) when working on electronic parts.
4. Unless specifically mentioned in the documentation, do not connect or disconnect elements (for example cards), when live.
5. Allow the temperature to stabilize before unpacking the cabinet.

C.2 Installation Conditions/Auxiliaries

These characteristics are mentioned as a reminder, and are given in the *CDA 7 5330 Site Preparation Guide.*

Electrical environment:

- 220 V - 20 A single phase, output by an electric box (International).
- Maximum distance from box 6 feet (2 m).
- 20 A (International) breaker.
- Maximum consumption 1.047 kVA.

Physical dimensions and size:

- Height: 46 inches (116.9 cm)
- Width: 21 inches (53.3 cm)
- Depth: 36 inches (91.4 cm)
- Floor area: 15.75 sq.ft. (1.4 square meters)
- Service width in front and behind: 36 inches (91.4 cm)

Heat dissipation:

3,575 BTU/hr in maximum configuration

C.3 Installing the CDA 7 on a Host System

Two ways are possible:

- Installation of a CDA 7 subsystem in an existing configuration. This case is described hereafter.
- Installation of a CDA 7 subsystem delivered with a new system. For more information, refer to the On-Line Help of the **BUILD P2** command of **FGF**.

C.3.1 Unpacking the CDA 7

Two packages are delivered on pallets:

- the first package contains the subsystem (the largest package).
- the second package contains:
  - the modem and its power supply
  - the documentation
  - tools and miscellaneous cables

You will find two self-adhesive envelopes on the main cardboard box containing:

- depalletizing instructions
- a sheet with the serial numbers of the cards and disks delivered (keep this sheet)

Contents of the second package

There are the following main elements:

- the AC power source cable for the subsystem
- the modem connection cable
- a media box (MICROCODE). **The media box must be present on the site**.
- a 5/16 hexagonal spanner
- a small insulated screwdriver (for handling rotactors)
- a plastic tool (for card resets)
- a spanner with expansion rod to access connection nuts
- a black/red connection cable used as extension cable if the battery is taken out of the cabinet
- loopback connectors for Bus&Tag cables
- an anti-static bracelet

De-palletizing the subsystem

1. Check the "TIP-N-TELL" indicator on one side of the main package.
2. Unpack the box, and cut the protection film to access the cabinet on its pallet.
3. Open the front and rear doors.
4. Release the cabinet by removing the shipping brackets, you will need to remove six screws and six bolts, see the figure below.

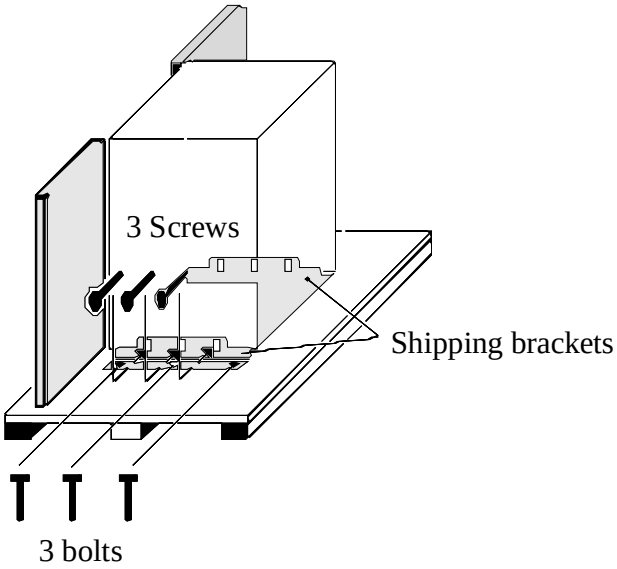


Figure C-1. CDA 7 5330, Removing the Shipping Brackets

5. Close and lock the front and back doors.
6. Put the lowering ramp into position.
7. Lower the cabinet carefully (caution, weight exceeds 300 kg).

Precautions

Make sure that you have locked the doors before tilting the cabinet onto the palletization rails. If you fail to do this, the front door (for example) could open under its own weight and be seriously damaged when it touches the floor.

Check the shock indicator (shockwatch): when the front door is opened, check the shock indicator (a small box) located inside the door at the top right. Steel balls held in place by springs must be in the position on the drawing above. If they are not, the cabinet has undoubtedly been subjected to a shock with sufficient amplitude to make the balls fall, and you may need to make a more detailed inspection.

Open the doors

Use the hexagonal spanner supplied in the tool box to open the doors.

C.3.2 Powering Up the CDA 7

C.3.2.1 Electrical Connection of Subsystem

1. After opening the back door, check that the PDM breakers (EPO and AC), the PS1 and PS2 breakers and the BATTERY switch are OFF.
2. Check that the circuit breaker, (customer panel), for the AC power connection box is OFF.
3. Connect the cabinet to the connection box using the AC power cable supplied in the tool pack.

C.3.2.2 Connecting the Modem

The modem is connected to COM2 on the PC through the COM card. To connect the Modem, refer to *Connecting the Modem* earlier in this document.

C.3.2.3 Switching on the CDA Subsystem

Preliminary checks:

- Check that the "slider switch" at the top of the COM card is in the down position.
- Check on the operator panel that the DIRECTORS are set to DISABLE.

Procedure in the following order:

1. Electrical control panel circuit breaker ON.
2. PS1 and PS2 breaker ON.
3. BATTERY switch ON.
4. EPO switch ON.
5. AC switch ON.

You can monitor the subsystem loading traffic on the front of the DIRECTORS. Loading can takes about 25 minutes, and is finished when the DIRECTORs display **0F**.

NOTE:
A faulty DIRECTOR or a DIRECTOR which has been badly initialized displays the value **DD.** In this case, restart the operation or contact support.

In this case, "loading" includes initialization of the hardware and loading the MICROCODE (IML = Initial MICROCODE Loading).

If there is no traffic on DIRECTORS, check that the PC is actually switched on.

C.3.3 Setting the CDA 7 Internal Clocks

To set the internal clocks of the CDA 7 subsystem:

- Set the PC internal clock.
- Load the defined values to the CDA 7 subsystem clock.

C.3.3.1 Setting the PC Internal Clock

When CDA 7 subsystem is switched on:

1. Set the PC Lap-Top date under DOS. To do this:
   - Enter the `C:\Symm4` directory.
   - Enter the following command:
     `C:\Symm4 > date`
     The current date is displayed. Enter the new date.
2. Using in the following format: mm-dd-yy, enter the date.
3. Using in the following format: HH-mm-ss, enter the time.
4. Validate the parameters.
5. Ask for a remote link to the Bull Competence Center.

The information you provided is stored in a Lap-Top file called SITEINFO.DAT.

C.3.3.2 Loading the Defined Parameter Values to the CDA 7 Clock

To set the SYMMETRIX clock of the CDA 7 subsystem:

1. Set All directors OFF line.
2. In the main window, select the **Maintenance Menu** or press **M**.

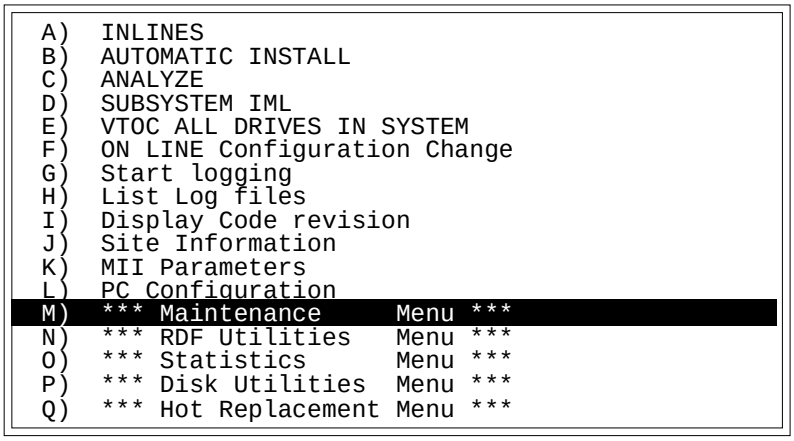


Figure C-2. Symm4 Main Window

3. Select the **Set Symmetrix Clock** option or press **K**. You automatically launch the procedure and the parameters of the PC configuration file are entered in the CDA 7. The **Symm4 Main Window** is displayed.

C.3.4 Setting the Site Information

To enter the site information:

1. In the **Symm4 Main Window, select Site information** option or enter J.

```
A)  INLINES
B)  AUTOMATIC INSTALL
C)  ANALYZE
D)  SUBSYSTEM IML
E)  VTOC ALL DRIVES IN SYSTM
F)  ON LINE Configuration Change
G)  Start logging
H)  List Log files
I)  Display Code revision
J)  Site Information
K)  MII Parameters
L)  PC Configuration
M)  *** Maintenance     Menu ***
N)  *** RDF Utilities   Menu ***
O)  *** Statistics      Menu ***
P)  *** Disk Utilities  Menu ***
Q)  *** Hot Replacement Menu ***
```

Figure C-3. Site Information - 1

The following three screens are displayed in sequence:

```
                          Site information
Enter site name: G7XXXX CUSTOMER MILANO
Symmetrix model: 57xx  54xx "53xx"
Format type:  IBM     DELTA  "BULL  "  COVIA_A   COVIA_B

Enter first Phone No: xxxxxxxxxxx                Network: BT-CORK
Enter SYMMETRIX modem Phone No: xxxxxxxxx
Enter Customer Phone No: xxxxxxxxx
Enter Box Serial Number: xxxxxxxxx
Hardware Configuration:                 memory size: xxxxMB
Enable Machine Initiated Interrupts? N
Enable Automatic Calls to FieldWatch? N
Notify operator on? N      call home result? Y
Report AC errors? Y
Enter second Phone No: xxxxx.....                Network: BT-CORK
Enter third  Phone No: xxxxx.....                Network: BT-CORK
Enter fourth Phone No: xxxxx.....                Network: BT-CORK

↓↑ to move, PgUp , PgDn to jump, F10 to exit, Esc to quit. More ↓
```

Figure C-4. Site Information - 2

To enter the three phone numbers, call the Bull Competence Center.

NOTE:
During the CDA 7 installation procedure, set **Enable Automatic Calls to FieldWatch?** to **N.** After the installation, verify the connection by changing **Enable Automatic Calls to FieldWatch?** to **Y**.

2. Enter the following parameters:

Enter site name: This name begins G7 followed by the four last digits of the serial number of the tag located on the rear side of the cabinet. For more information refer to the *Cabinet Serial Number*, later in this section.

Symmetrix model Highlight 53xx option.

Format type Highlight BULL option.

Box Serial Number Enter the Cabinet serial number displayed on the cabinet identification label.

Automatic Calls to Fieldwatch
During the installation, leave this parameter equal to **N** except special cases. To verify the connection, set it to **Y**.

Telephone numbers Call the Bull Competence Center to obtain these numbers. They are used by the AUTOCALLS function.

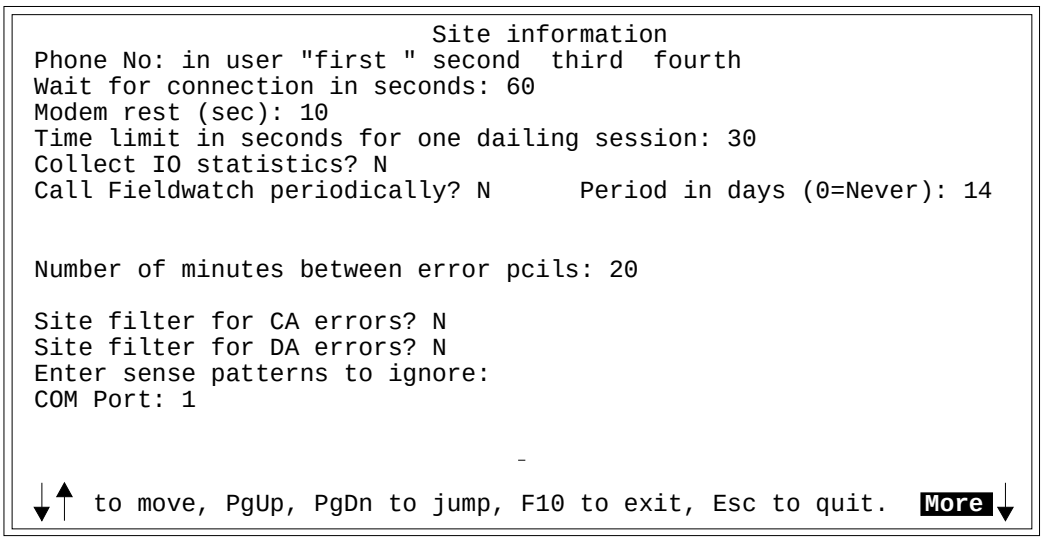


Figure C-5. Site Information - 3

Note some redundancies between the two first **Site information** screens.

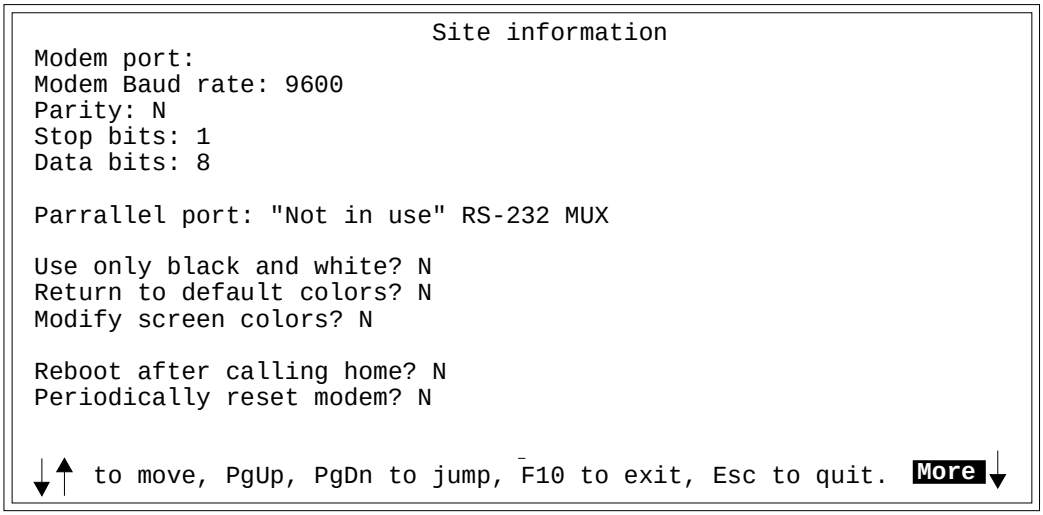


Figure C-6. Site Information - 4

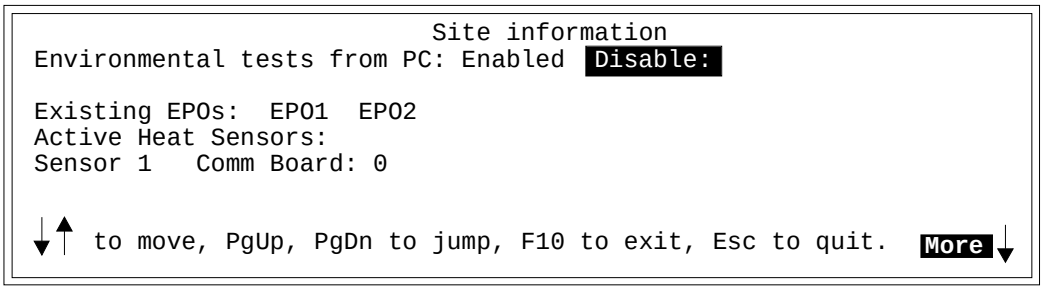


Figure C-7. Site Information - 5

The values of some of these parameters may change in different versions, please refer to the Bull Competence Center to obtain up-to-date parameters.

IMPORTANT:
Remember that the function of the ESCape key is to exit **without modification**.

3. Press **F10** to go back to the **Symm4 Main Window** and save modifications.
4. When press **ESC**ape generally displays the following message:

```
All changes will be abandoned.
Quit anyway? Y
```

5. Enter **Y** for YES. The default option is **N** for NO.
6. Pressing **ESC**ape displays the following message:

```
Do you really want to quit? Y
```

7. Press Enter to return to MS-DOS.

You can return to the main menu by entering the "loop" command:

```
C:\SYMM4 >    loop
```

C.3.5 Verifying the Site Information

C.3.5.1 Verifying the Customer Name

The Customer name is in the header of the main menu in the miscellaneous information area:

Figure C-8. Customer Name

NOTE:

For the DPS 7000 line, the customer name will be identified as follows:

```
G7 + last 4 digits of the serial number + (Blank) +
Customer Name + (Blank ) + Town
```

This allows the AUTOCALL reception center to sort DPS 7000 systems, and to process/direct the message in accordance with the Customer's Maintenance contract.

This customer identifier is used as password (see *Setting the Modem Parameters* described hereafter).

The remote station contains a file in the form of a table defining the correspondence between the system serial number and the type of maintenance contract.

C.3.5.2 Verifying the CDA 7 Serial Number

The cabinet serial number is located on the label glued at the top back of the rack.

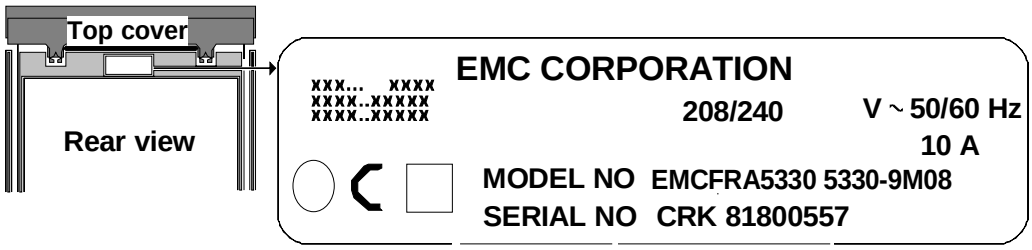


Figure C-9. Cabinet Serial Number

All the information entered in the above screens can be changed at any time by re-selecting **Site Information** in the Main menu.

C.3.6 Setting the Modem Parameters

To set the Modem parameters:

1. Under the **SYMM4** prompt, enter the following command:

   ```
   C:\SYMM4> scsetup
   ```

   The following dialog box is displayed.

SymmCom	Target Configuration
Modem	**Multitech MULTIMODEM**
Comm Port	**COM (3F8 hex- IRQ4)**
Port Rate	**19200**
Connectivity	**Allowed**
Encryption	**OFF**
Call Back disabled	
Prefix if any to access an outide line	
Generate Configuration	**Y**

Is Symmetrix attached to an Ethernet LAN for use as its communication mode ? (Y/N)

Figure C-10. Modem Parameter Setting

2. At first installation, change the password. This password is generally G70xxx, where xxx are the three last digits of the serial number of the CDA 7 subsystem.
3. Answer **N** to the first message: CDA 7 5330 is not attached to an Ethernet LAN. The **Make a Model** window is displayed.
4. Enter **N**. Successive dialog boxes are displayed.

5. To enter the values of the parameters displayed in the above table, answer to these dialog boxes as follows:

Modem	Multitech MULTIMODEM
Comm Port	COM2 (2F8 hex.)
Port Rate	9600
Connectivity	Allowed
Password Change	Enter G7xxx.
Encryption	OFF
Call Back disabled	Press Enter.
Prefix if any to access an outside line	Press Enter.
Generate Configuration	Y

After the last message, you automatically go back to the DOS prompt.

6. To display the **Symm4 Main window**, enter the `loop` command.

C.3.7 Verifying the CDA 7 Configuration

Bull has defined a number of standard models, for which the configuration (number of disks, number of DIRECTORS, etc.) is precisely determined.

In order to initialize the subsystem correctly, the PC must contain a file describing the installed configuration; it is obvious that this file describes one of the standard configurations (or basic models) specified in Bull/EMC agreements.

This file is called IMPL.BIN in the directory:

```
C:\SYMM4
```

In order to proceed this "Automatic Install" command, the PC disk must contain the IMPL.BIN corresponding to the delivered configuration.

C.3.7.1 List of Available BIN Files

For a system with 9 GB disks, see paragraph A.2 (Appendix A).

C.3.7.2 Standard Configuration

The standard configuration of a basic CDA 7 contains:

- 2 to 4 SCSI Channel DIRECTORS
- 2 Disk DIRECTORS
- 2 Memory boards
- 8 physical disk-modules

For more information about CDA 7 subsystems with 9 GB disks, refer to the Appendix A *Software Release and CDA 7 Configurations (9 GB Disks)* earlier in this document.

C.3.7.3 Checking the Configuration

To check the configuration on the laptop, you can choose the following procedure:

1. From the main menu, using the Up/Down arrows select the **Maintenance menu** or press **M**.
2. Using the Up/Down arrows, select the **View IMPL files** command or press **B**. The four following screens are displayed:

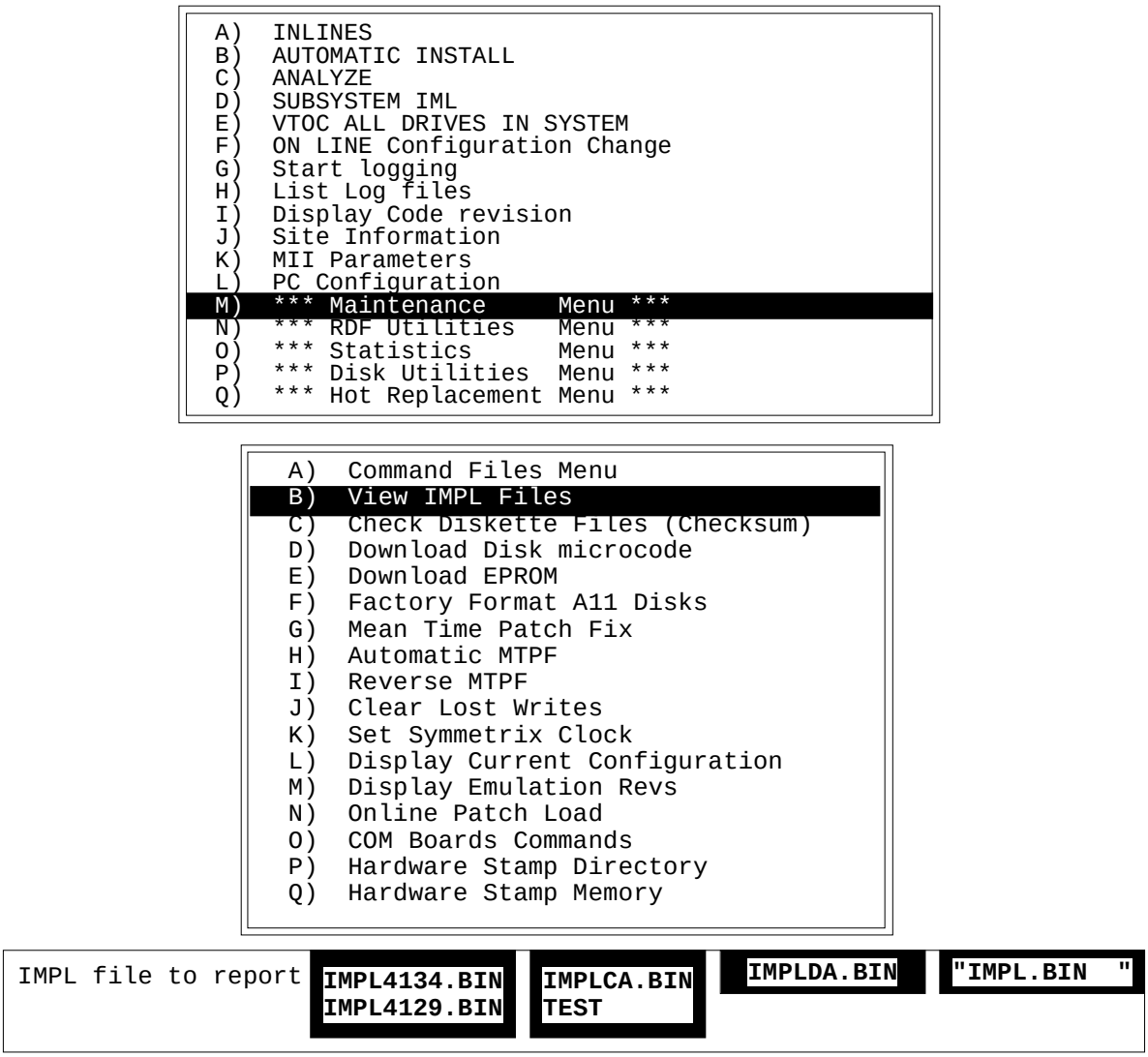


Figure C-11. Checking the Configuration

And an example of the final result:

```
IMPL File: C:\SYMM4\IMPL.BI1     08/29/97 15:14:04
aced: ACED  version: 4220  internal date: 08/29/1997
================== IMPL HEADER ==================
Host:                           Server/Bull
Emulation:                      FBA
Disk size:                      :Mix
Physical drives:                16
Volumes:                        8
Mirrors:                        8
Memory (MB):                    1024
Hot Spare:                      Disable
Mirroring:                      Enable
RDF:                            Disable
False disconnect:               Disable
Auto restore lost writes:       Enable
Perma-Cache:                    Disable
Prefetch:                       Enable
Record Cache:                   Disable
FIFO / LRU:                     LRU
Cache Fast Write:               Enable
Write Pending Ceiling (%):      80
Cache F.W. Track Ceiling:       32000
9370 Mode:                      Disable
Multiplexing:                   Enable
DA DMA Burst:                   0
CA DMA Burst:                   0
Image:                          09
SCU ID:                         E0
Controller ID:                  30
Diagnostics:                    No
Battery Backup:                 180
Shutoff:                        300
Track Mask:                     FFFF
Processor Instruction Cache:    Enable
Processor Data Cache:           Enable
PC Alive:                       Enable

================== Directors ==================
 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
-------------------------------------------------------------------------------
DA4 |DA4 |    |    |    |    |    |    |    |    |    |    |    |    |SA4 |SA4 |
-------------------------------------------------------------------------------
```

```
================== Detailed Director list ==================
DA-01
Target | Dev. |   Int.    |  Cyl.  |    Label   |      Flags     |
====== | ==== | ======== | ====== | ========== | ============== |
00     | 00   | C0       | 18414  | SYM000     | M1             |
01     | 04   | C1       | 18414  | SYM004     | M1             |
02     | 02   | D0       | 18414  | SYM002     | M1             |
03     | 06   | D1       | 18414  | SYM006     | M1             |
04     | 03   | E0       | 18414  | SYM003     | M2             |
05     | 07   | E1       | 18414  | SYM007     | M2             |
06     | 01   | F0       | 18414  | SYM001     | M2             |
07     | 05   | F1       | 18414  | SYM005     | M2             |

DA-02
Target | Dev. |   Int.    |  Cyl.  |    Label   |      Flags     |
====== | ==== | ======== | ====== | ========== | ============== |
00     | 01   | C0       | 18414  | SYM001     | M1             |
01     | 05   | C1       | 18414  | SYM005     | M1             |
02     | 03   | D0       | 18414  | SYM003     | M1             |
03     | 07   | D1       | 18414  | SYM007     | M1             |
04     | 02   | E0       | 18414  | SYM002     | M2             |
05     | 06   | E1       | 18414  | SYM006     | M2             |
06     | 00   | F0       | 18414  | SYM000     | M2             |
07     | 04   | F1       | 18414  | SYM004     | M2             |

SA-15: (4 Channels)

Channel: A
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
000      | 07       | 20       | 27       | 8        |

Channel: B
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: C
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: D
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
```

```
SA-16: (4 Channels)

Channel: A
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
000      | 07       | 20       | 27       | 8        |

Channel: B
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: C
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: D
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

================== System IDs ==================
00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
=================================================================
E0 | E0 | E0 | E0 | E0 | E0 | E0 | E0 |
```

This shows a configuration with 16 Mirrored disks, and 4 SCSI Channel DIRECTORS.

C.3.7.4 Modifying the Configuration

If the configuration is incorrect, there are several solutions:

- The Bull Competence Center download your IMPL.New file.
- The Bull Competence Center may be present at the installation and have the diskette containing standard files.

If necessary, copy the file under MS-DOS using the following procedure:

1. Press Escape to exit from the main menu. The C:\SYMM4 prompt is displayed.
2. Rename the IMPL.Bin file as IMPL.Old.
3. Copy the IMPL.Bin file.:
4. Return to the main menu:

   ```
   C:\SYMM4 > LOOP
   ```

C.3.7.5 Running Automatic Installation

To run the Automatic Installation:

1. Highlight the **AUTOMATIC INSTALL** option in the Main menu or enter **B**.

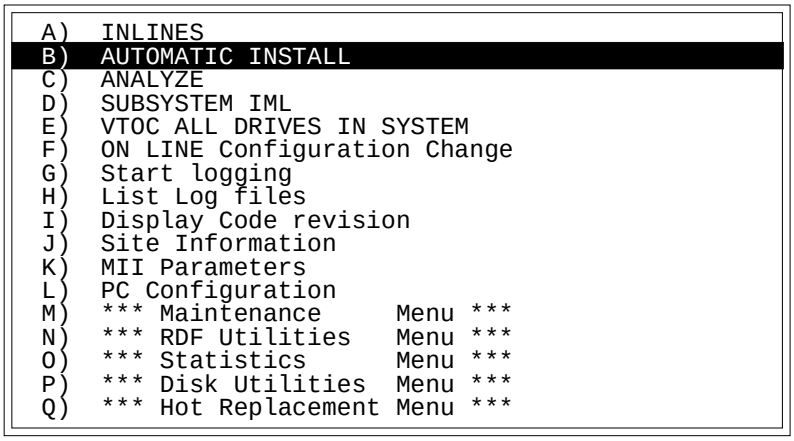


Figure C-12. The Automatic Install Command

The following screens are displayed in turn.

- In each screen, press the **up/down/right/left** keys to highlight your choice.
- Press **Enter** to validate the highlighted parameter and go to the next line or next screen.

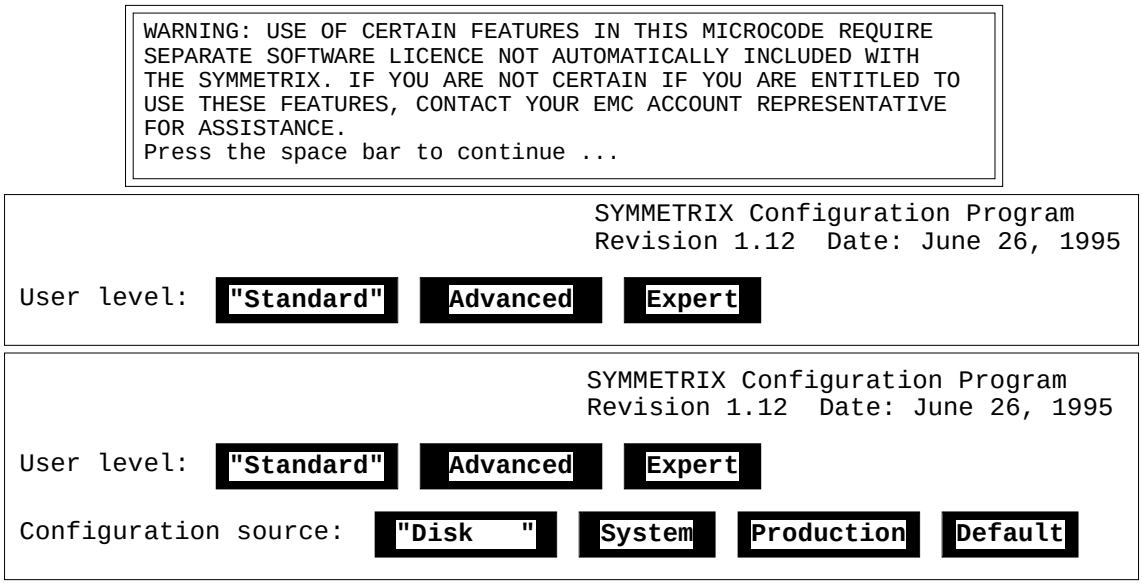


Figure C-13. Automatic Install Screens

2. Select **Standard/Disk**. The PC reads the IMPL.BIN file from disk.
   - If the **System** option is chosen, the configuration is read from the installed hardware.
   - If it is the first installation of your CDA 7, the procedure terminates by a request to format the subsystem disks.

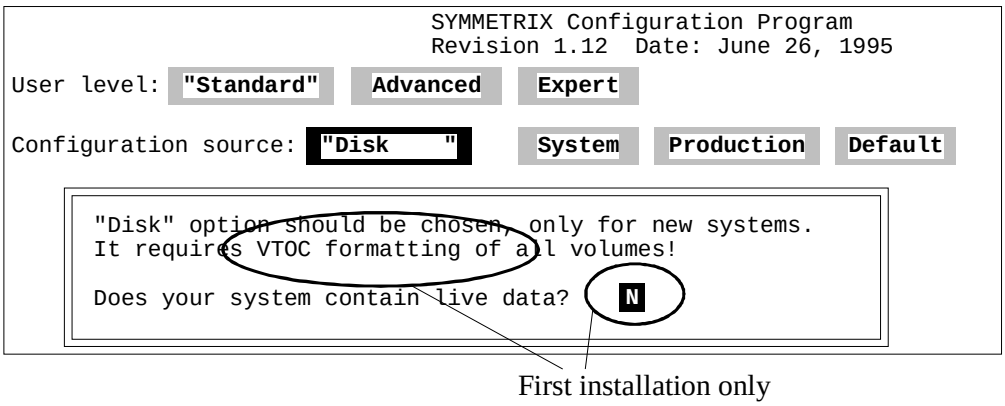


Figure C-14. Warning before a Disk-Device Format

The next screen gives a warning concerning a format operation on disks. The following dialog box asks if the PC is connected to a CDA 7 cabinet ("box"), which is usually the case.

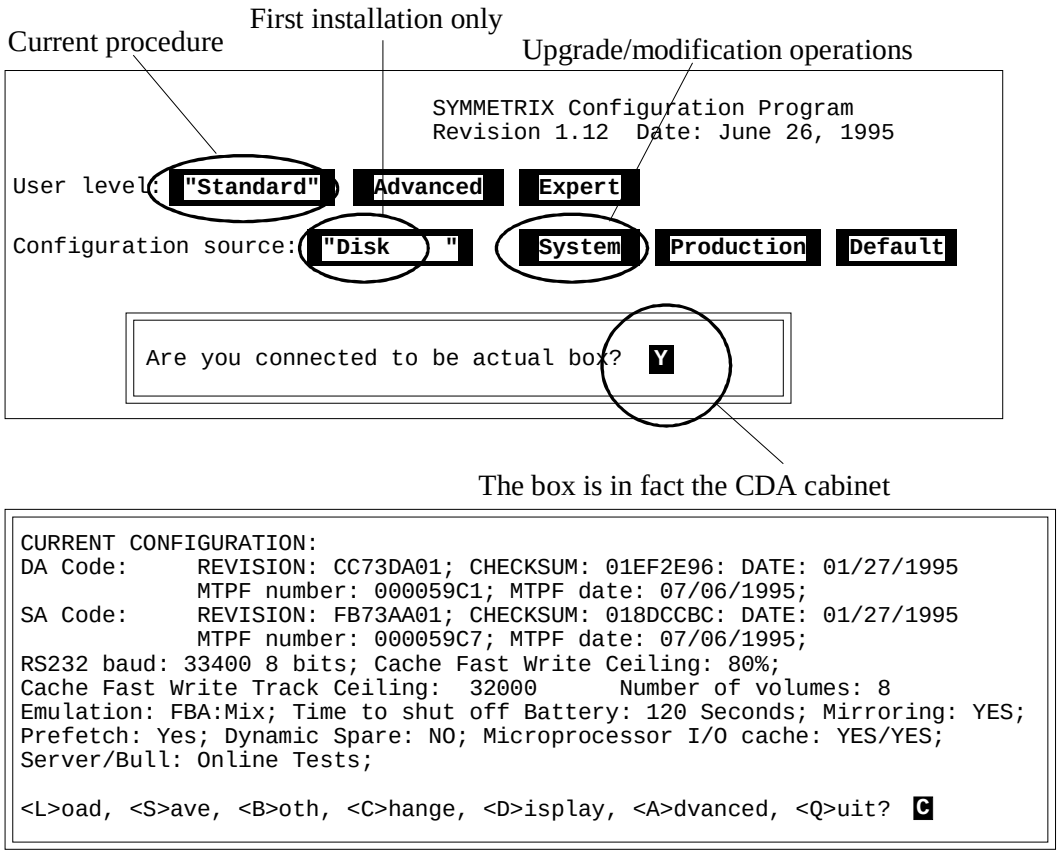


Figure C-15. Installation Dialog

The final screen contains several options (see the line at the bottom of the screen):

L	Load and activate the (new) configuration
S	Save the configuration on disk after modification without loading it
B	Save and Load at the same time after modification
C	Change (or adapt) what is displayed
D	Display the IMPL.BIN file as described above in the previous section
A	Advanced functions reserved for specialists or engineering
Q	Exit without changing and return to the main menu

Now that the IMPL.BIN file is correct , you can go on and select the "LOAD" command.

C.3.7.6 Running the Change Command

To change (or check) the configuration or some parameters, proceed as follows:

1. If you modify an existing configuration in the case of an Add-on, select **Change** to make any changes to the configuration, or to check the configuration.

CAUTION:
This procedure presents certain dangers for the customer's data, so you must contact Bull Competence Center or an experienced person before proceeding.

The **F10** key is used to exit **and save**. If you accidentally modify and change a live configuration, there is a risk of destroying data.

To quit without saving any change, press **ESCape**.

The following screens are displayed:

2. Highlight the chosen parameter.
3. Press **Enter**.

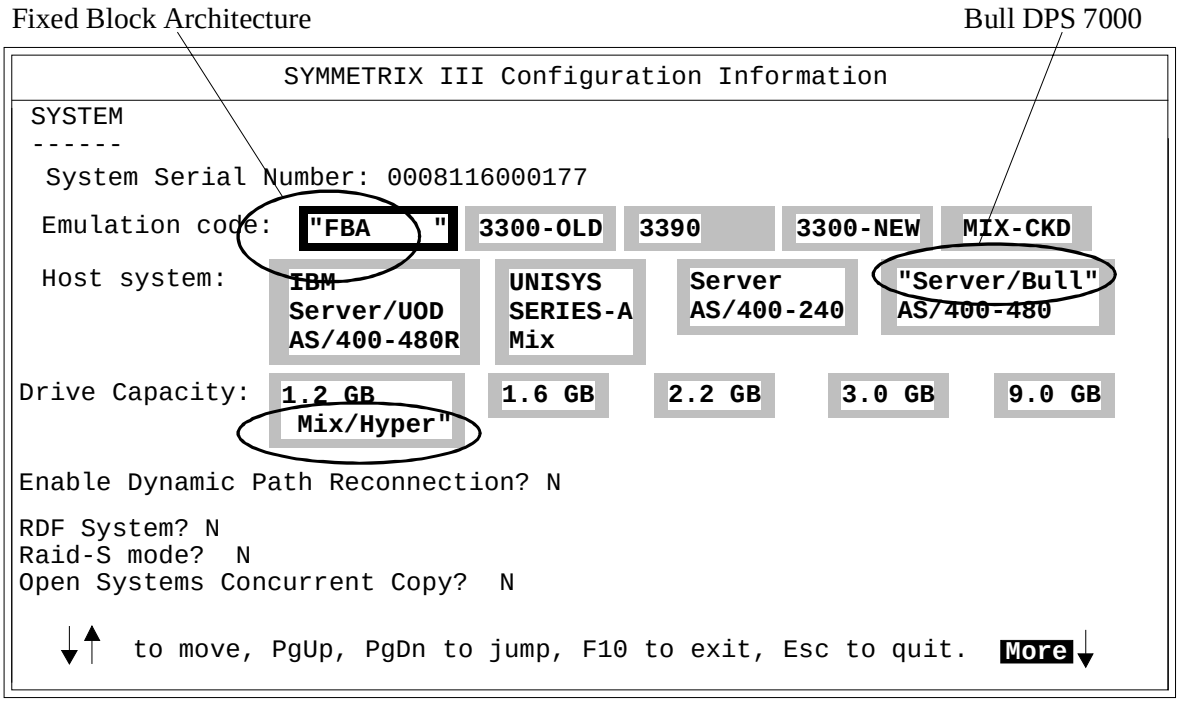


Figure C-16. The Change Command - 1

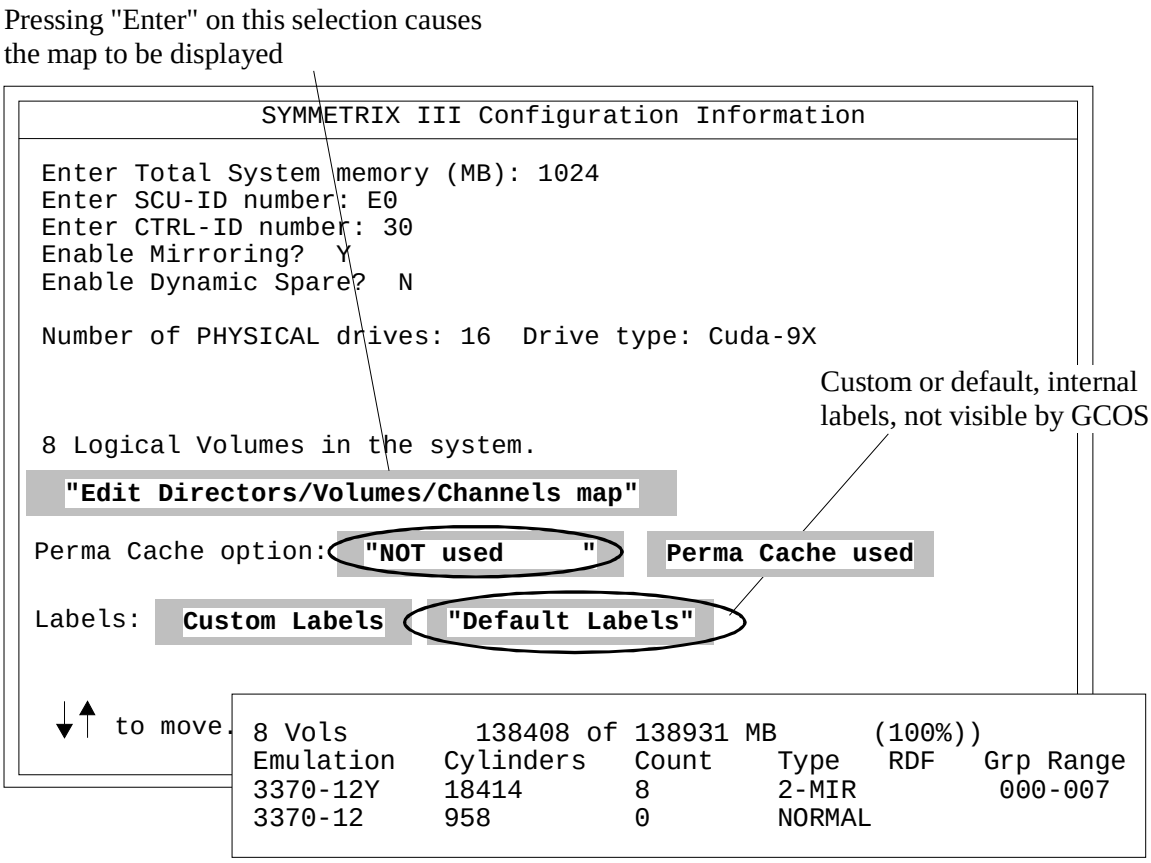


Figure C-17. The Change Command - 2

4. Highlight the **Edit Directors/Volumes/Channels map** option, and then press **Enter**. A screen displays the distribution of volumes as shown in the figure above.

The following screen contains a representation of physical disks and access channels.

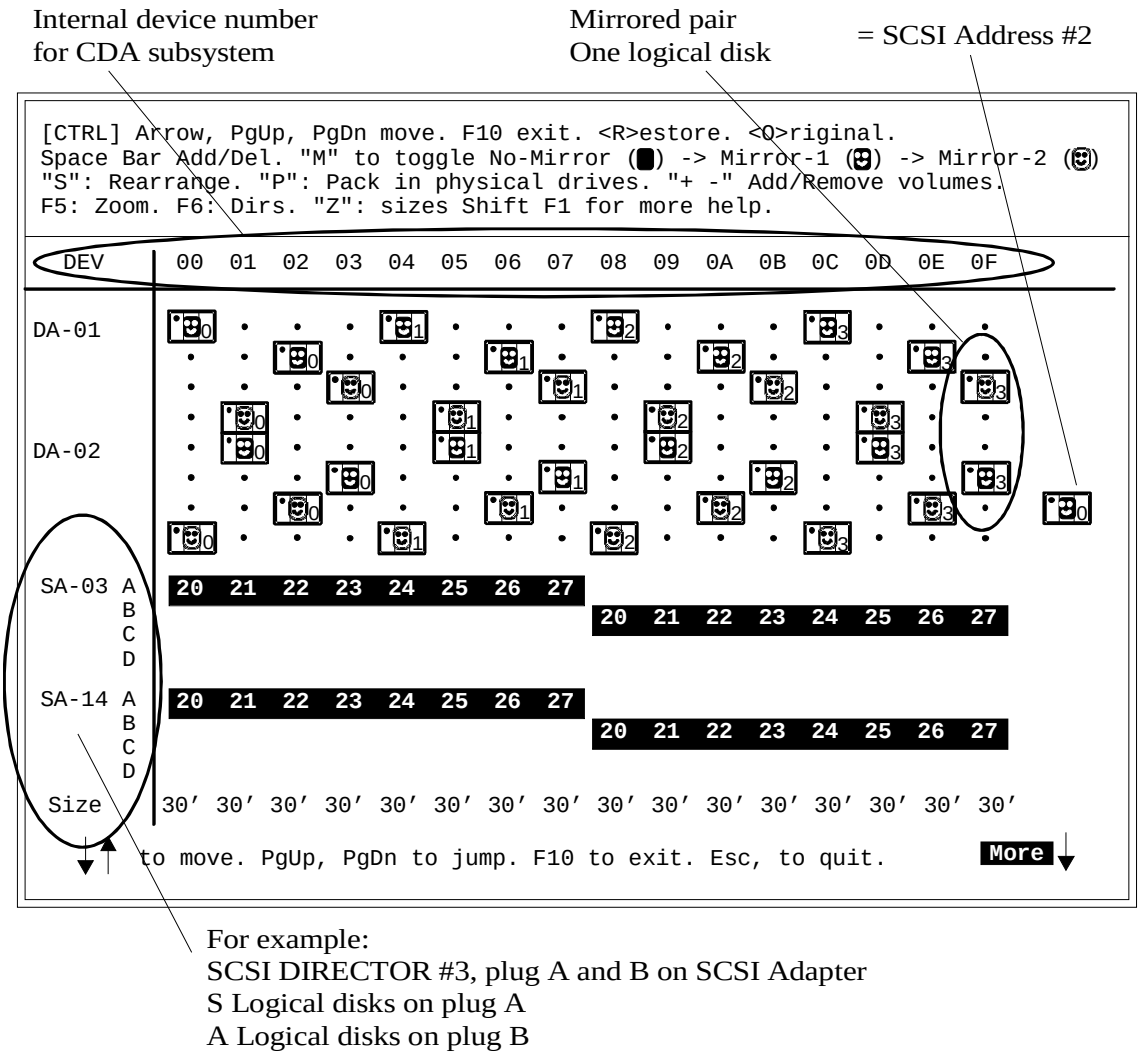


Figure C-18. The Change Command - 3

This shows a system with 32 Mirrored disks, that is 16 logical units (this configuration does not necessarily correspond to a delivered configuration).

Note the SCSI address of each disk on its bus, at the top right of each ideogram.

Documentation about possible commands and symbols used is displayed in the upper part of the screen (Non-mirror, primary or secondary disks).

You can remove a resource (a disk), or modify its status. These commands will be used by Bull Competence Center if the disk configuration is changed.

The lower part of the screen shows the distribution of logical units per channel.

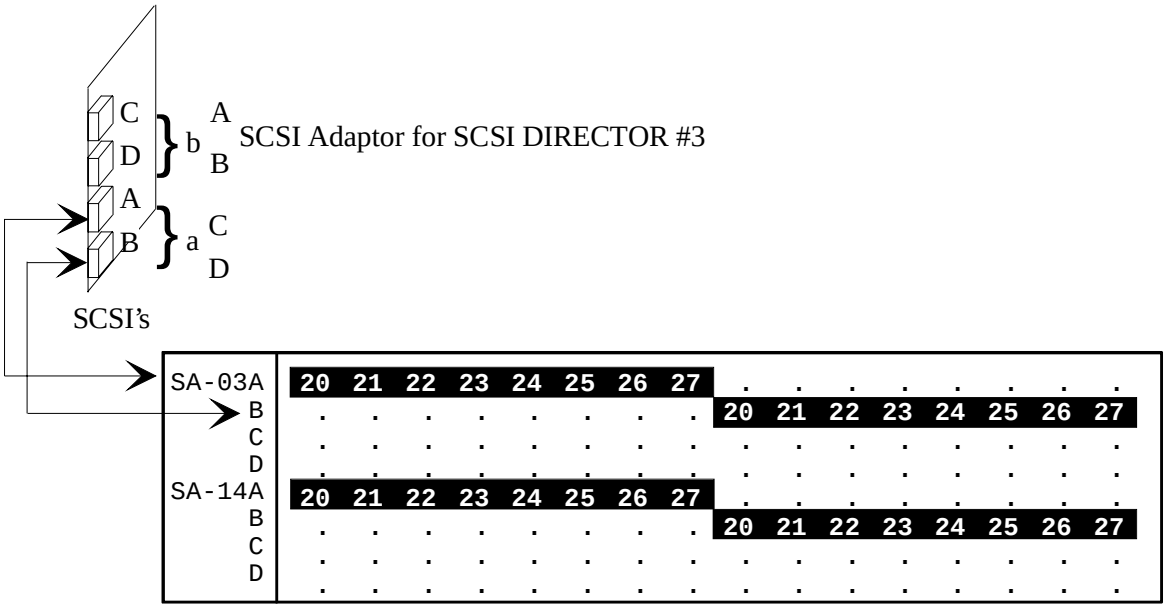


Figure C-19. Distribution of Logical Units

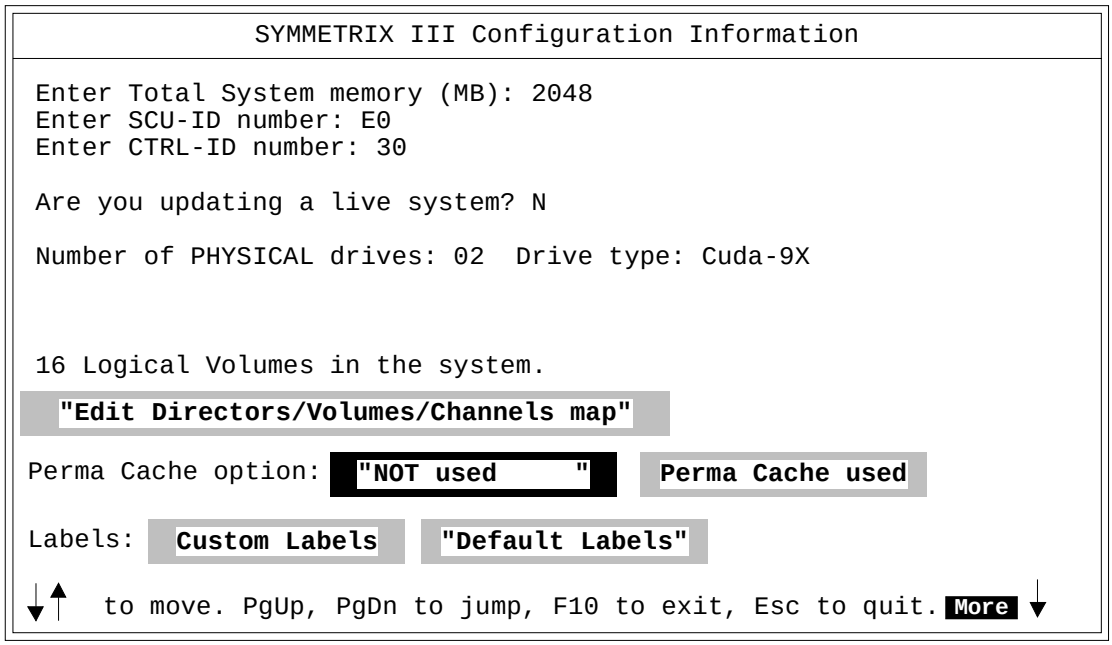
The final part of the screen shows the wiring of the 16 logical units in the subsystem.

1. Press **F10**. The following message is displayed:

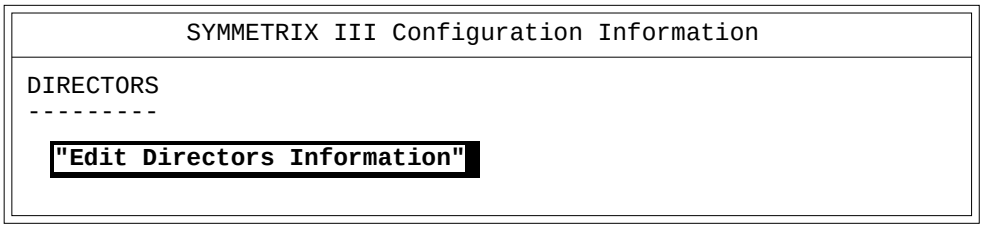
   Channel/interface has no active volumes.
   Proceed any way ?

2. Enter **Y**. A dialog box is displayed and asks for a password.
3. Enter the password. This returns the last screen but one, with the cursor positioned on the **Permacache** option.

   The maximum value of the **Number of PHYSICAL drives** is 08.



4. Select the **Default labels** option. This label is internal to the system, of the type SYM000, SYM001, SYM003, etc ., and not visible to GCOS.
5. Press **Enter**. The following screen is displayed.



6. To display information about DIRECTORS, press **Enter**. The following table shows the Director information.

DA-01a						
DA-02a	T	L	Y	W	S	E
	T	L	Y	W	S	E
SA-15a	T	L	Y	W	S	E
	T	L	Y	W	S	E
SA-15b	T	L	Y	W	S	E
	T	L	Y	W	S	E
SA-16a	T	L	Y	W	S	E
	T	L	Y	W	S	E
SA-16b	T	L	Y	W	S	E
	T	L	Y	W	S	E

END OF TABLE

Remember that the MNCONF "LABEL" command will give almost the same layout showing the distribution of disks on each SCSI channel, for cabling the subsystem and the name of the binfile.

1. Press **F10**. A dialog box is displayed.
2. Enter the password and the first screen in which you selected **Change** reappears.

```
CURRENT CONFIGURATION:
----------------------
DA Code:     REVISION: CC73DA01; CHECKSUM: 01EF2E96: DATE: 01/27/1995
             MTPF number: 000059C1; MTPF date: 07/06/1995;
SA Code:     REVISION: FB73AA01; CHECKSUM: 018DCCBC: DATE: 01/27/1995
             MTPF number: 000059C7; MTPF date: 07/06/1995;
RS232 baud: 33400 8 bits; Cache Fast Write Ceiling: 80%;
Emulation: FBA:Mix; Time to shut off Battery: 120 Seconds; Mirroring: YES;
Prefetch: Dynamic Spare: NO; Microprocessor I/O cache: YES/YES;
Server/Bull: Online Tests;

<L>oad, <S>ave, <B>oth, <C>hange, <D>isplay, <A>dvanced, <Q>uit? C
```

3. Select **Both** (Save and Load). The dialog box asking for the password is displayed.

   You save the configuration with any changes you have made on the PC disk, and load the MICROCODE in DIRECTORS.

4. To format the disk-drives, go to the main menu and select **VTOC ALL DRIVES IN SYSTEM** or enter **E**. Depending on the configuration, this operation will take some time (about 20 minutes).

   At the end of this operation your system is initialized and loaded, but the DIRECTORS are still **disable**.

5. Under MS-DOS, save the IMPL.BIN and SITEINFO.DAT files onto a diskette. Keep this diskette carefully as a backup.

To do this:

1. Press **Escape** to exit the main menu.
2. Confirm your request. The C:\SYMM4 prompt is displayed.
3. Insert the diskette.
4. Enter the following command:

   ```
   C:\SYMM4 > COPY C:\SYMM4\IMPL.BIN A:\<goodfile.bin>
   ```

5. Return to the main menu with the command:

   ```
   C:\SYMM4 > LOOP
   ```

C.3.8 Declaring the CDA 7 Subsystem under GCOS 7

The version of FGF supporting CDA 7 subsystem does not have any new commands for management of these subassemblies.

C.3.8.1 Global Method

Firstly, you should be aware that if MSC4 subsystems are present in the configuration, MNCONF will assign slots occupied by the PxM cards to WSP cards, and that substitution will be compulsory.

LSS subsystems (and channels and disk external identifiers) will not be assigned.

Other PRM or NCC7 type cards may be moved.

The procedure is as follows:

1. Starting from the running configuration (CONFIG_OLD), execute a MODIFY command under MNCONF and add CDA subsystems to create a new configuration (CONFIG_NEW), based on the original configuration.

   The result of this operation gives:

   – The future slots for WSP cards.
   – The list of IOM cards to be removed so that WSP cards can be installed.
2. In the new configuration, CONFIG_NEW, use the "IOM" command to look for possible slots for cards which were removed in the previous step.
3. In CONFIG_OLD, execute one or more MOVE commands to the slots found in step 2, for the IOMs deleted in step 1, in order to make room to install the WSP cards. At the end of this step, a configuration will be created which may be called CONFIG_TEMPRY and which will contain the necessary free slots.
4. In CONFIG_TEMPRY, execute a MODIFY command to insert WSP cards supporting CDA subsystems.

This creates the final configuration, for example named CONFIG_MYCDA.

C.3.8.2 Declaring the CDA 7 Subsystems

Non-coupled system

Definition: a "physical group" of disks always contains 8 disks.

The following is a standard declaration of a configuration containing 8 physical disks.

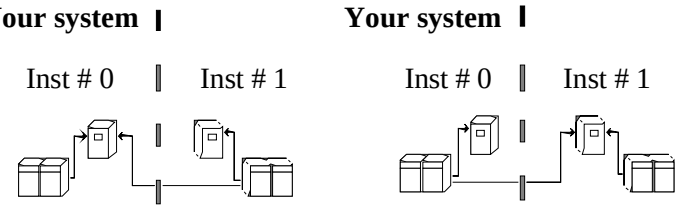
```
(1) N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :
      CDA #01
      Number of 8-disk physical groups RAID-S
                        (0)                        :
      Number of 8-disk physical groups MIRROR
                        (1 )                       :1
    -> Generated MS external names:
(2)     Gr1 (01 02 03 04)
      CDA #02
      Present?          (0)                        :
    --> Generated WSP-R IOMs (CDA7):
(3)   Iom WSP-R slot 15 PX43
       Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
      Do you confirm (Y, N or / for exit)? (Y)    :Y
(4) *** previous iom PSM   slot 06 PX43 is lost
N:
```

Coupled systems

For a coupled system answer "1" to the second question in the following sequence:

```
 N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :1
.........etc .....
```

Coupling refers to both of the following possibilities:



From inst # 1 to "myinstall" From "myinstall" to install # 1

NOTE:

Cabinets that are accessed by two installations are incorrectly called "4 path" since each installation can have only two paths.

First case: your system is accessed by installation #1

```
N: MD OLD NEWCDA CDA7
   CDA7
     CDA7 present?     (0)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 8-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :1
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (0 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
     Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04
     port 0,coupled
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Second case: your system accesses installation #1 :

```
N: MD TEMPCDA REMPCDA1 CDA7
   CDA7
     CDA7 present?     (1)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 8-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (4 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :1
     Number of coupled LCs for Gr1
                       (0 )                       :8
     Number of coupled LCs for Gr2
                       (0 )                       :
   -> Generated MS external names:
       Gr1 (YQ YR YS YT YU YV YW YX)
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
      Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
     Iom WSP-R slot 12 PX40
      Port 0 cab #01 Gr #1 linked to WSP-R PX57 slot 01
      port 0,other
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Special case of the NCC card

The NCC7 card occupies two slots, therefore there must be two consecutive free slots.

There you may need to do an additional "MOVE" to release a second slot.

C.3.8.3 Running the LABEL Command

The LABEL command has been modified to support CDA 7 subsystems.

It clearly and unambiguously gives From/To information for SCSI cables between IOSS and the CDA 7 cabinet.

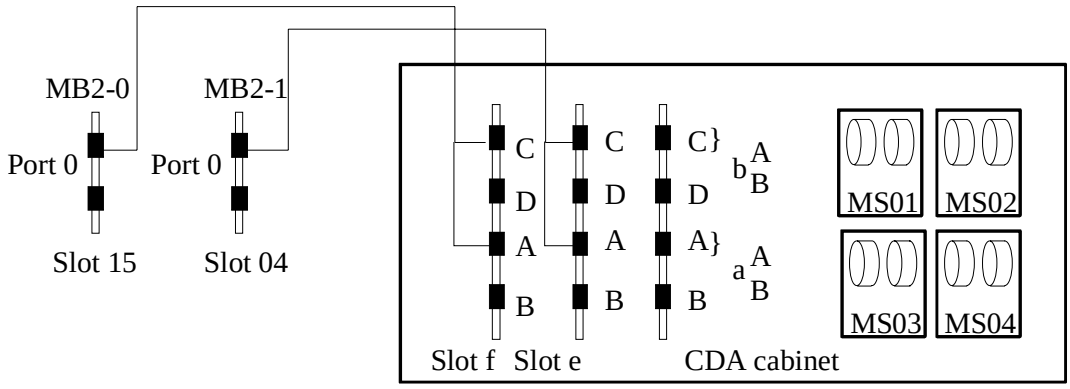
EXAMPLE 1 WITHOUT COUPLING:

Configuration: 8 mirrored disks = 4 logical volumes

```
*** LABELS and CDA7 connections: MYCDA ***

Iom WSP-R slot 15 PX43
 port 0 connected to Scsi Adaptor slot f port A cda #01
Iom WSP-R slot 04 PX14
 port 0 connected to Scsi Adaptor slot e port A cda #01

*MB2-0-15-2  *   *MC01 SA f-A  *   *MB2-1-04-2  *   *MC21 SA e-A
*            *   *MS01         *   *MS02        *   *MS03        *   *MS04
```

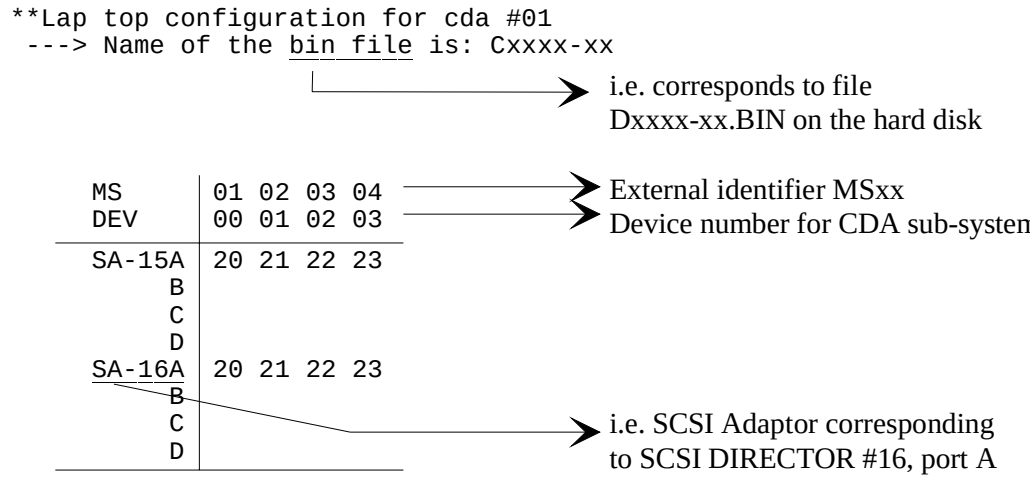
Controller name

Slot #
MB2 #
SCSI Adapter
Slot
Port



❑

EXAMPLE 2 DISK CONFIGURATION ON LAP-TOP:



The file name Dxxxx-xx.BIN must correspond to one of the typical configurations.

The active file IMPL.BIN in the PC must be identical.

❑

CAUTION:

The information that you note is the only unambiguous record of the correspondence between external identifiers of logical disk units (MS), seen from GCOS, and physical disk drives (DEV) seen from the CDA 7 cabinet Lap-Top.

You must keep a copy of this document and send another copy to the Bull Competence Center.

EXAMPLE 3 WITH COUPLING:

This is a configuration of 16 mirrored disks belonging to a cabinet in another installation.

```
   Iom WSP-R slot 19 PX47
    port 0 connected to Scsi Adaptor slot 0 port D cda #01 other instal
   Iom WSP-R slot 08 PX10
    port 0 connected to Scsi Adaptor slot 2 port D cda #01 other instal

From              To
   *MB2-0-19-2  * *MC1M SA d-DA  * *MB2-1-08-2  * *MC3M SA 2-D
   *inst #0     * *inst #1       * *inst #0     * *inst #1
   *            * *MS YH         * *MS YI       * *MS YJ          * *MS YK
   *            * *MSYL          * *MS YM       * *MS YN          * *MSYP
```

External identifier

- ❑

D. Software Release and CDA 7 Configurations (18 GB Disks)

This Appendix concerns the CDA 7 with 18 GB disks.

For the equivalent information for a system with 9 GB disks, see Appendix A.

D.1 Software Level

The software release level is identified according to the following format:

```
XXXX.yy.zz
```

where:

XXXX	is the Base Code Family (4 digits)
yy	is the change number in Emulation Code (2 digits)
zz	is the change number in Lap-Top Code (2 digits)

EXAMPLE:

```
SOFTWARE LEVEL
5263.18.48
```

❑

D.2 BIN Files

The 18 GB configuration implies sharing with UNIX. In this case, the BIN files described below are just the base from which you create the real BIN files. The BIN files supplied describe just the disks accessed by GCOS 7.

In the case of sharing between the CDA 7 and UNIX, the ESP option is implemented.

The following BIN files are available:

5300-18M:

S01-200.BIN	4 HDAs Mirrored (4 M1 + 4 M2)
S02-200.BIN	8 HDAs Mirrored (8 M1 + 8 M2)
S03-200.BIN	12 HDAs Mirrored (12 M1 + 12 M2)
S04-200.BIN	16 HDAs Mirrored (16 M1 + 16 M2)
S05-200.BIN	20 HDAs Mirrored (20 M1 + 20 M2)
S06-200.BIN	24 HDAs Mirrored (24 M1 + 24 M2)
S07-200.BIN	28 HDAs Mirrored (28 M1 + 28 M2)
S08-200.BIN	32 HDAs Mirrored (32 M1 + 32 M2)

As the HDA capacity is divided by two, the capacity of M1 and M2 is "9G".

D.3 CDA 7 5330 Disk Configurations

A CDA 7 5330 cabinet is organized into from one to four physical groups (0 to 3) of eight physical disks each. Each physical group is four MIRROR devices (8 physical disks).

The initial cabinet configuration must be all physical MIRROR groups.

The basic models are designated by **EMC5330 srm** and the corresponding binary file is: **srm-xyz.bin** where:

d or **s**	s indicates an 18 GB disk that is logically split, otherwise d
r	indicates the type of disk: 0=RAID 1
m	number of physical groups of four disks
x	is the number of SCSI adapters (2 or 4)
y, z	is the coding of the coupled physical groups (00= for CDA Binary files)

EXAMPLE:

CDA5330 model with binary file S02-200 (2 mirror groups)

- 18 Gbyte disks logically split
- two physical MIRROR groups.

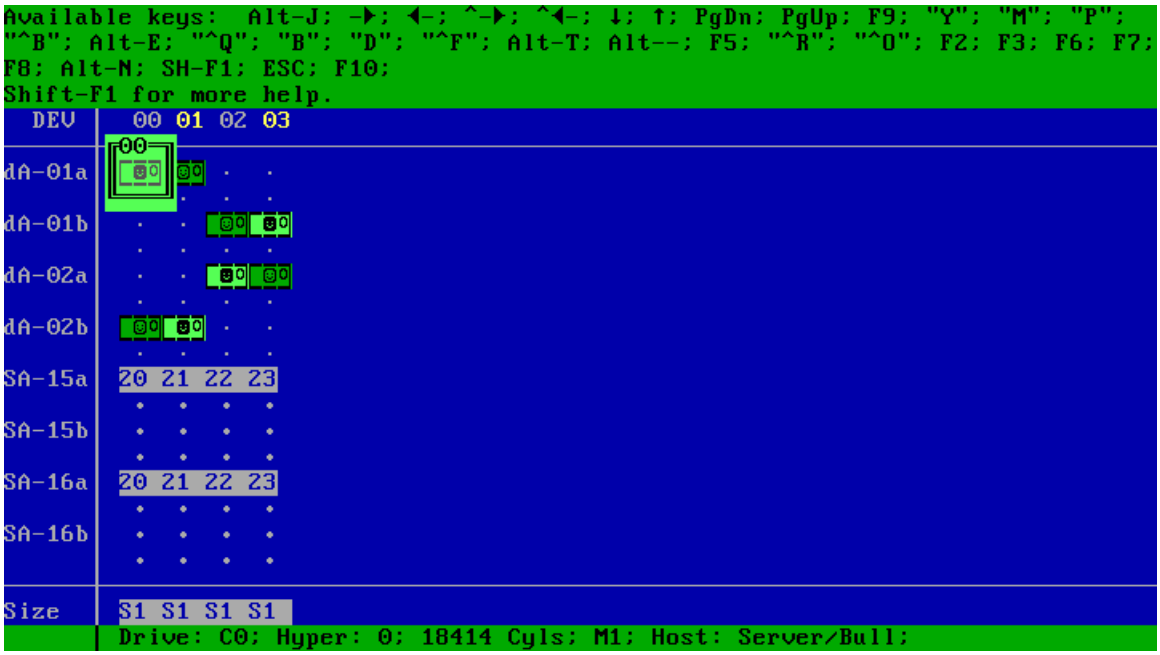
❑

D.4 Basic Models

D.4.1 Binary File S01-200.BIN

4 physical disks (and 4 logical disks) configured in RAID1: 4 Mirror.

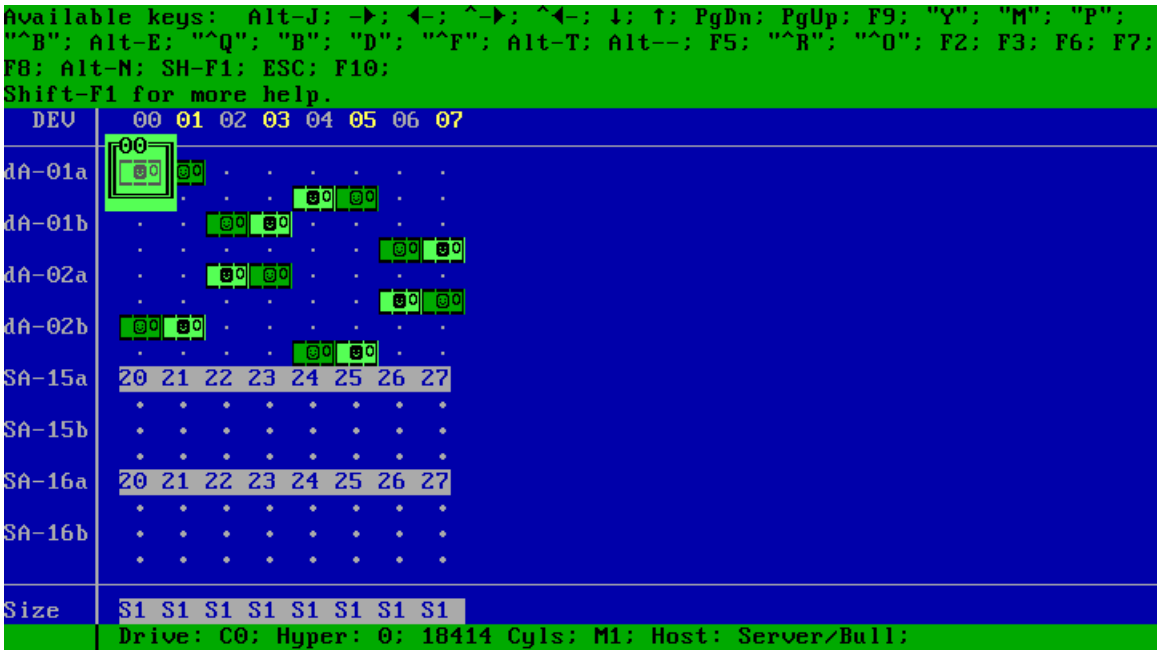
Cache: 2*512 MBytes.



D.4.2 Binary File S02-200.BIN

8 physical disks (and 8 logical disks) configured in RAID 1: 8 Mirror.

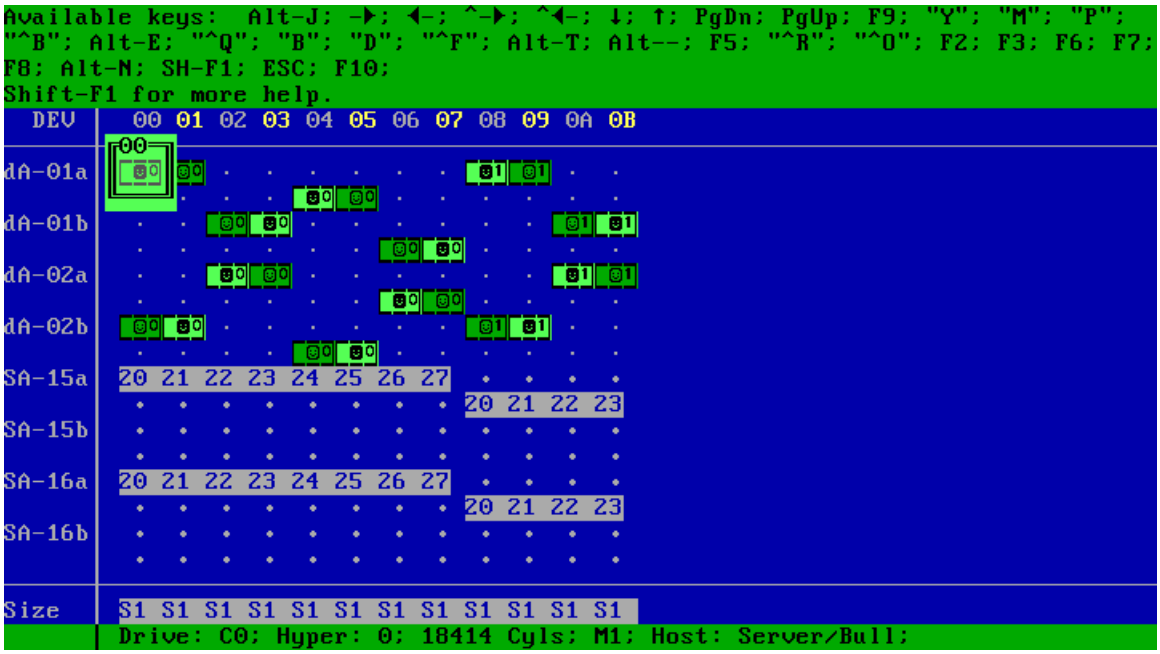
Cache: 2*512 MBytes.



D.4.3 Binary File S03-200.BIN

12 physical disks (and 12 logical disks) configured in RAID 1: 12 Mirror.

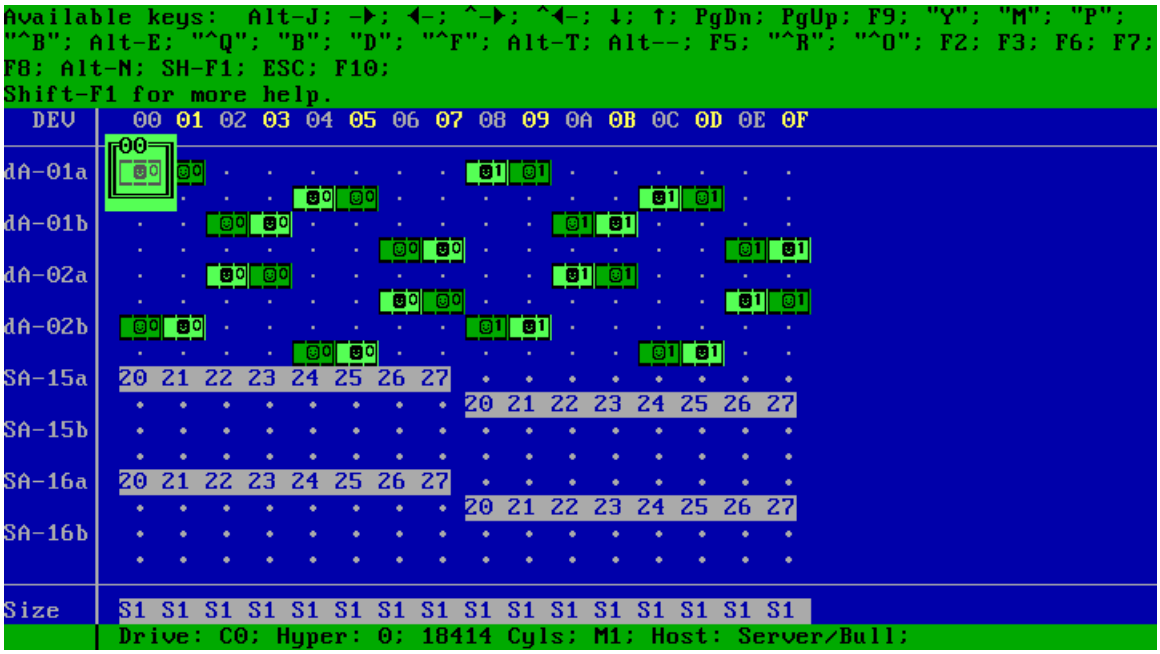
Cache: 2*512 MBytes.



D.4.4 Binary File S04-200.BIN

16 physical disks (and 16 logical disks) configured in RAID 1: 16 Mirror.

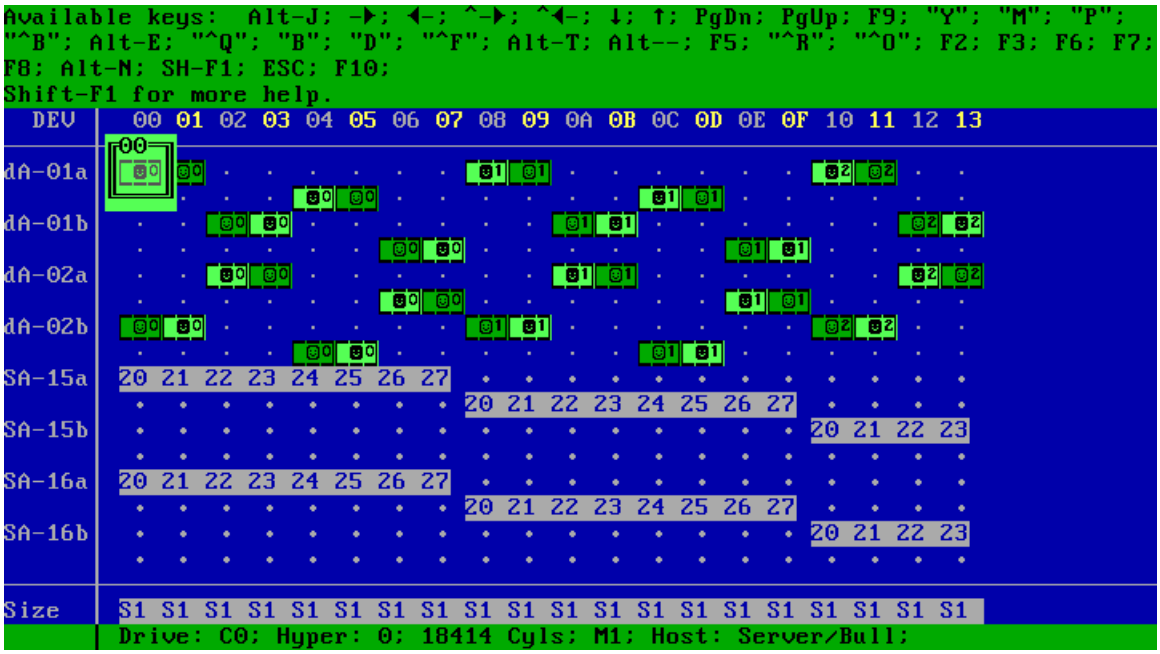
Cache: 2*512 MBytes.



D.4.5 Binary File S05-200.BIN

20 physical disks configured in RAID 1: 20 Mirror.

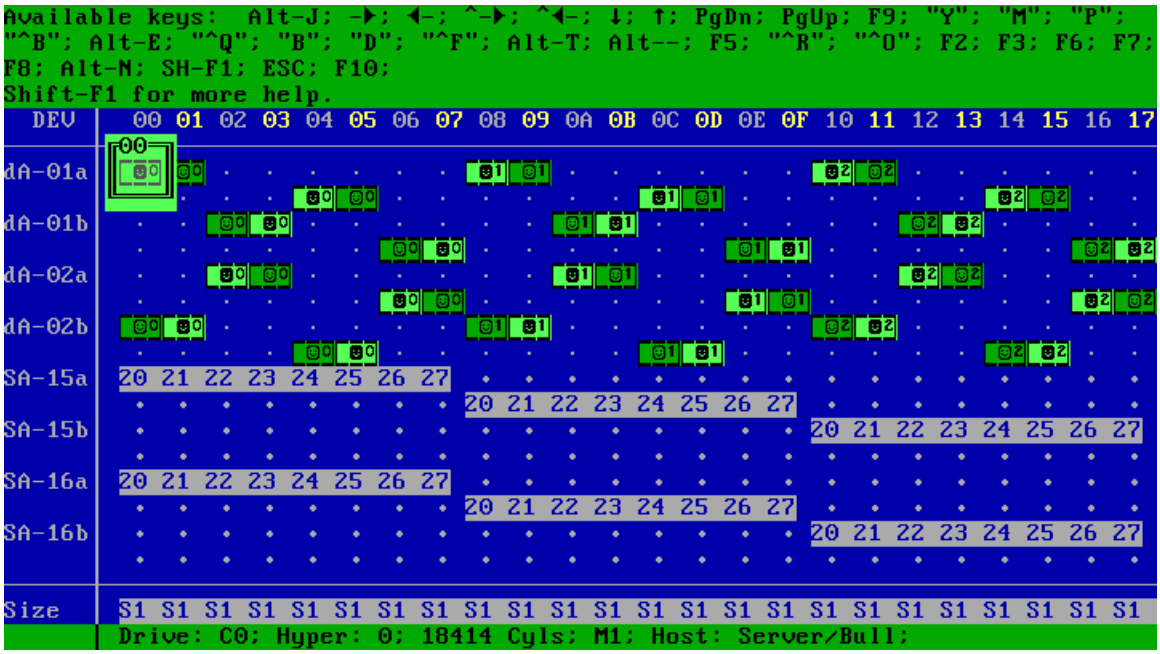
Cache: 2*512 MBytes.



D.4.6 Binary File S06-200.BIN

24 physical disks configured in RAID 1: 24 Mirror.

Cache: 2*512 MBytes.

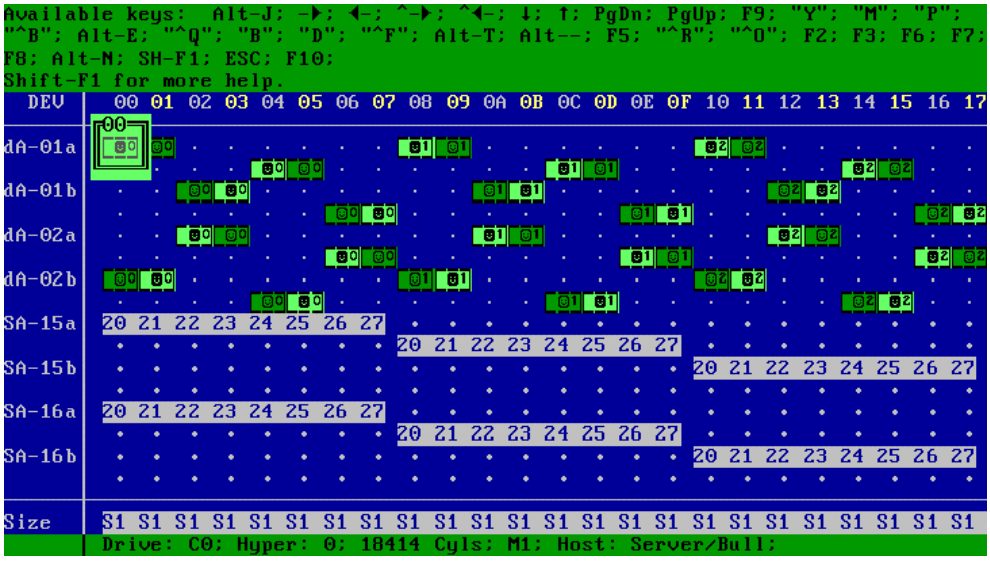


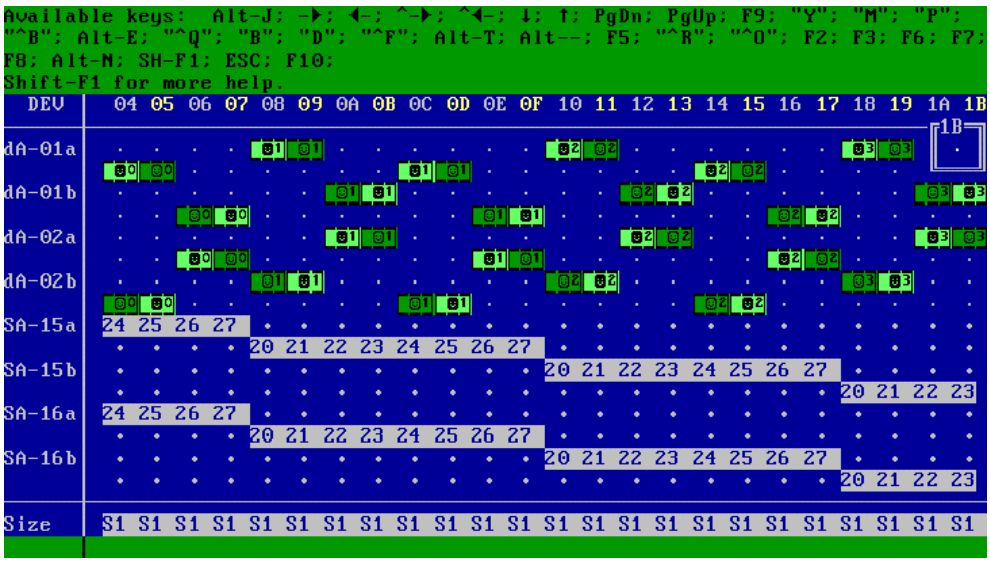
D.4.7 Binary File S07-200.BIN

28 physical disks configured in RAID 1: 28 Mirror.

Cache: 2*512 MBytes.

MI: For example, MSPD054-0000.



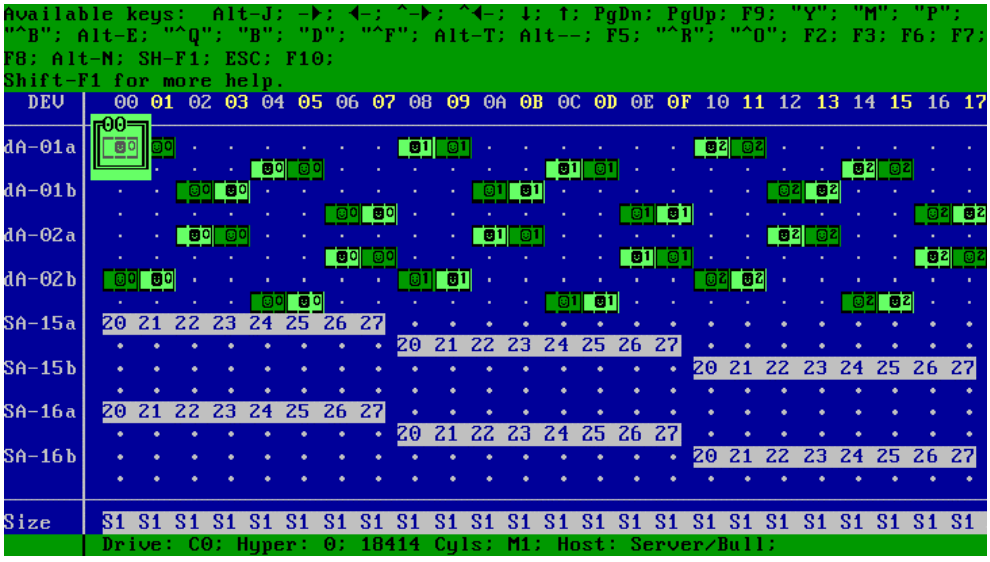


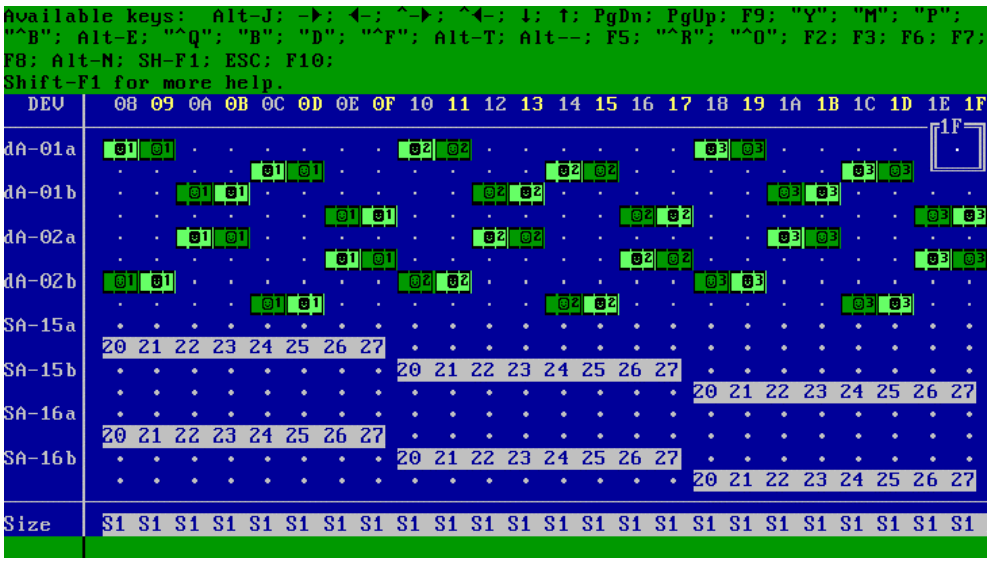
D.4.8 Binary File S08-200.BIN

32 physical disks configured in RAID 1: 32 Mirror.

Cache: 2*512 MBytes.

The first figure shows the left hand side, the second shows the right hand side.





E. Installing the CDA 7 5330 with Microcode Release 5264

This Appendix concerns the CDA 7 with Microcode Release 5264. This release of the Microcode can run on systems with 9 GB or with 18 GB disks.

The following table shows the relationship Microcode Release <-> Disk Size.

Disks	**Release 5263**	**Release 5264**
9 GB	Yes	Yes
18 GB	No	Yes

E.1 Before Installation

Before installing the CDA 7:

1. Disconnect the AC power supply cable from your machine before doing any work (except for specific hot replacements of elements).
2. Do not switch the system on if the ground conductor is disconnected.
3. Take anti-static precautions (bracelets, anti-static packaging) when working on electronic parts.
4. Unless specifically mentioned in the documentation, do not connect or disconnect elements (for example cards), when live.
5. Allow the temperature to stabilize before unpacking the cabinet.

E.2 Installation Conditions/auxiliaries

These characteristics are mentioned as a reminder, and are given in the *CDA 7 5330 Site Preparation Guide.*

Electrical environment:

- 220 V - 20 A single phase, output by an electric box (International).
- Maximum distance from box 6 feet (2 m)
- 20 A (International) breaker
- Maximum consumption 1.547 kVA

Physical dimensions and size:

- Height: 46 inches (116.9 cm)
- Width: 21 inches (53.3 cm)
- Depth: 36 inches (91.4 cm)
- Floor area: 15.75 sq.ft. (1.4 square meters)
- Service width in front and behind: 36 inches (91.4 cm)

Heat dissipation:

5,174 BTU/hr in maximum configuration

E.3 Installing the CDA 7 on a Host System

Two ways are possible:

- Installation of a CDA 7 subsystem in an existing configuration. This case is described hereafter.
- Installation of a CDA 7 subsystem delivered with a new system. For more information, refer to the On-Line Help of the **BUILD P2** command of **FGF**.

E.3.1 Unpacking the CDA 7

Two packages are delivered on pallets:

- the first package contains the subsystem (the largest package).
- the second package contains:
  - the modem and its power supply
  - the documentation
  - tools and miscellaneous cables

You will find two self-adhesive envelopes on the main cardboard box containing:

- depalletizing instructions
- a sheet with the serial numbers of the cards and disks delivered (keep this sheet)

Contents of the second package

There are the following main elements:

- the AC power source cable for the subsystem
- the modem connection cable
- a media box (MICROCODE) **The media box must be present on the site**.
- a 5/16 hexagonal spanner
- a small insulated screwdriver (for handling rotactors)
- a plastic tool (for card resets)
- a spanner with expansion rod to access connection nuts
- a black/red connection cable used as extension cable if the battery is taken out of the cabinet
- loopback connectors for Bus&Tag cables
- an antistatic bracelet

Depalletizing the subsystem

1. Check the "TIP-N-TELL" indicator on one side of the main package.
2. Unpack the box, and cut the protection film to access the cabinet on its pallet.
3. Open the front and rear doors.
4. Release the cabinet by removing the shipping brackets, you will need to remove six screws and six bolts, see the figure below.

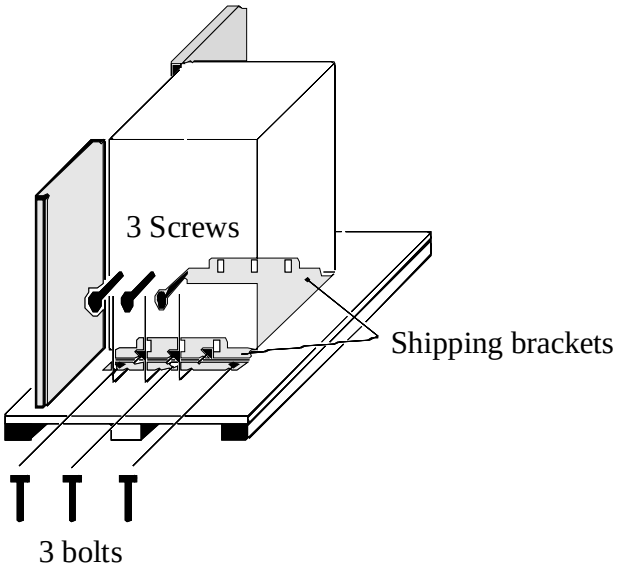


Figure E-1. CDA 7 5330, Removing the Shipping Brackets

5. Close and lock the front and back doors.
6. Put the lowering ramp into position.
7. Lower the cabinet carefully (caution, weight exceeds 300 kg).

Precautions

Make sure that you have locked the doors before tilting the cabinet onto the palletization rails. If you fail to do this, the front door (for example) could open under its own weight and be seriously damaged when it touches the floor.

Check the shock indicator (shockwatch): when the front door is opened, check the shock indicator (a small box) located inside the door at the top right. Steel balls held in place by springs must be in the position on the drawing above. If they are not, the cabinet has undoubtedly been subjected to a shock with sufficient amplitude to make the balls fall, and you may need to make a more detailed inspection.

Open the doors

Use the hexagonal spanner supplied in the tool box to open the doors.

E.3.2 Powering Up the CDA 7

E.3.2.1 Electrical Connection of Subsystem

1. After opening the back door, check that the PDM breakers (EPO and AC), the PS1 and PS2 breakers and the BATTERY switch are OFF.
2. Check that the circuit breaker, (customer panel), for the AC power connection box is OFF.
3. Connect the cabinet to the connection box using the AC power cable supplied in the tool pack.

E.3.2.2 Connecting the Modem

The modem is connected to COM2 on the PC through the COM card. To connect the Modem, refer to *Connecting the Modem* earlier in this document.

E.3.2.3 Switching On the CDA Subsystem

Preliminary checks:

- Check that the "slider switch" at the top of the COM card is in the down position.
- Check on the operator panel that the DIRECTORS are set to DISABLE.

Procedure in the following order:

1. Electrical control panel circuit breaker ON.
2. PS1 and PS2 breaker ON.
3. BATTERY switch ON.
4. EPO switch ON.
5. AC switch ON.

You can monitor the subsystem loading traffic on the front of the DIRECTORS. Loading can takes about 25 minutes, and is finished when the DIRECTORs display **0F**.

NOTE:

A faulty DIRECTOR or a DIRECTOR which has been badly initialized displays the value **DD.** In this case, restart the operation or contact support.

In this case, "loading" includes initialization of the hardware and loading the MICROCODE (IML = Initial MICROCODE Loading).

If there is no traffic on DIRECTORS, check that the PC is actually switched on.

E.3.3 Setting the PC Parameters

To set the PC parameters: use the Up arrow to highlight **PC Configuration** or press **L**.

```
A)   INLINES
B)   AUTOMATIC INSTALL
C)   ANALYZE
D)   SUBSYSTEM IML *** NOT SUPPORTED ***
E)   VTOC ALL DRIVES IN SYSTEM
F)   ONLINE UPGRADE NOW IN AUTOMATIC INSTALL MENU
G)   Start Logging
H)   List Log files
I)   Display Code revision
J)   Site Information
K)   MII Parameters
L)   PC Configuration
M)   *** Maintenance     Menu ***
N)   *** RDF Utilities   Menu ***
O)   *** Statistics      Menu ***
P)   *** Disk Utilities  Menu ***
Q)   *** Hot Replacement Menu ***
```

Figure E-2. PC Configuration - 1

The following screen is displayed:

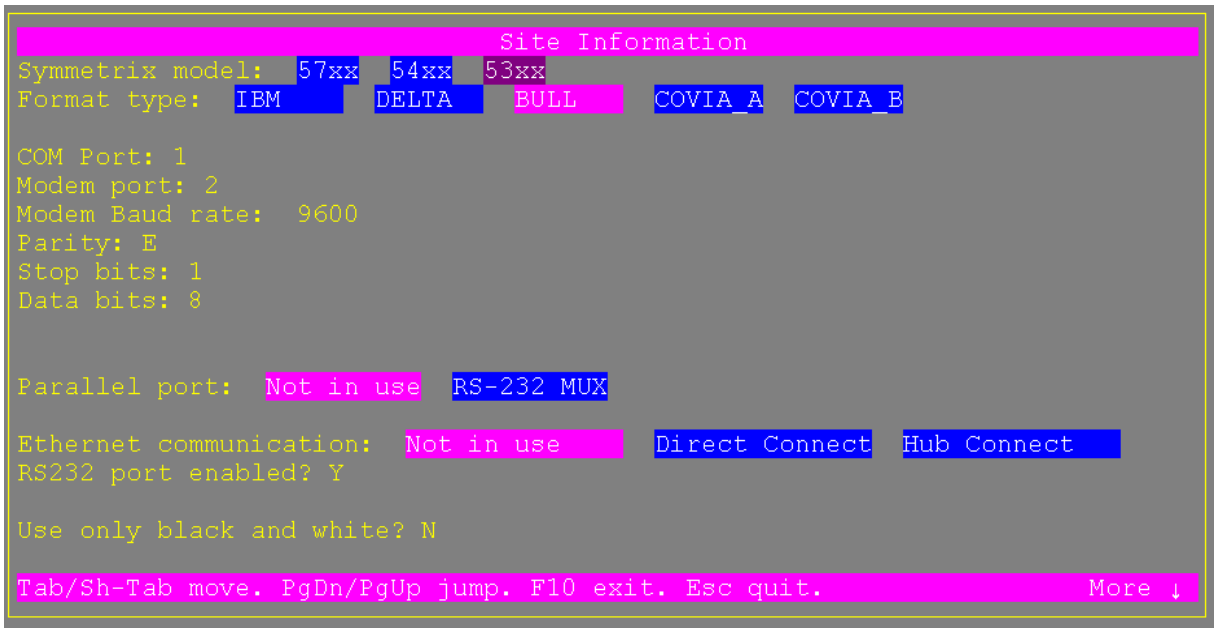


Figure E-3. PC Configuration - 2

This screen displays the standard values of the parameters. If you select the Parallel port:

- **RS-232 MUX**, the following line displays: **MUX "local" director: 1** and the cursor goes automatically to this line. Use the RS-232 port when you change the DA-01. To do this, refer to *Replacing the DA#1 from the Lap-Top Access Change* earlier in this document.
- **Not in use**, the following line is **Use only black and white**?

You navigate in the screen by pressing the Up/Right/Down/Left keys. Select each parameter in turn to set the values shown above and then press ENTER.

- You can use the **F10** key at any time to quit and save modified/displayed values.
- You can use the **ESC** key at any time to exit from the screen ignoring all modifications.
- Values shown between quotes are those active when you enter the screen or chosen in the modification sequence.

E.3.4 Setting the Site Information

To enter the site information:

1. In the **Symm4 Main Window**, select **Site information** option or enter **J**.

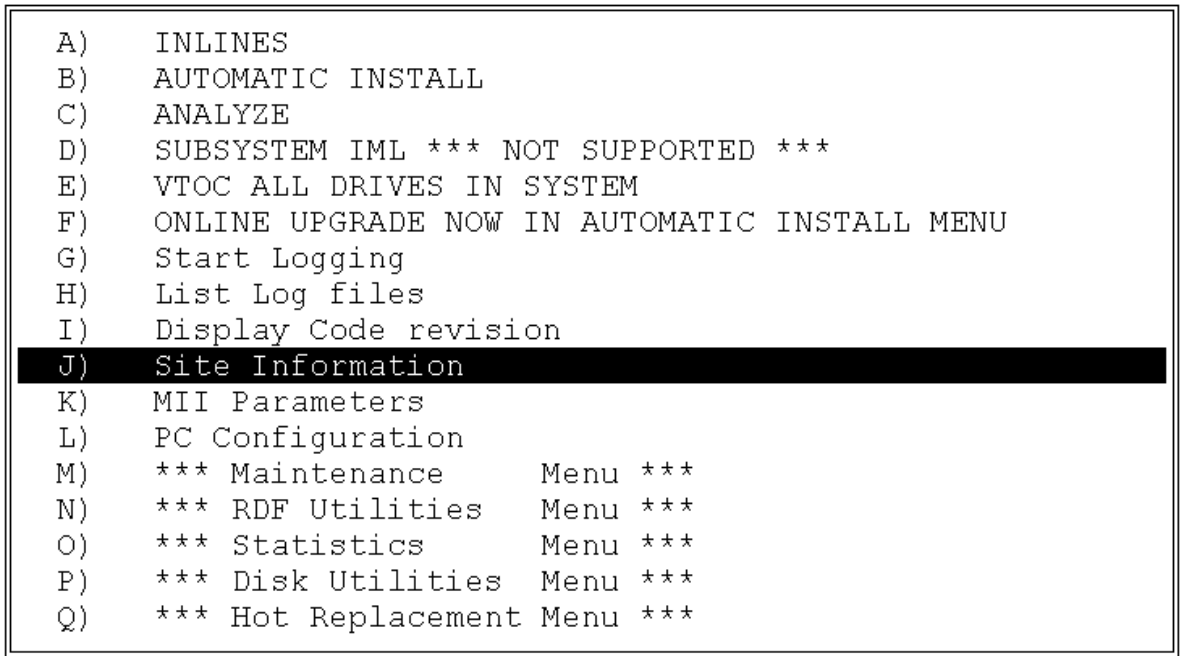


Figure E-4. Site Information - 1

The following screen is displayed:

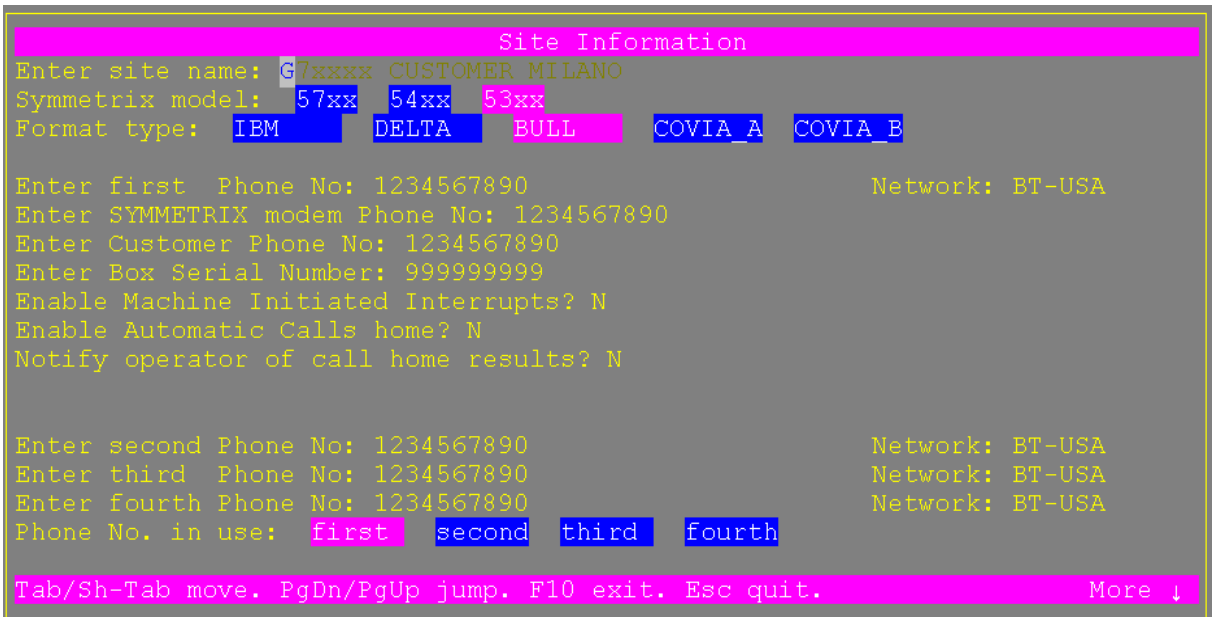


Figure E-5. Site Information - 2

To enter the three phone numbers, call the Bull Competence Center.

2. Enter the following parameters:

Enter site name: This name begins G7 followed by the four last digits of the serial number on the label located on the rear side of the cabinet. For more information refer to the *Cabinet Serial Number*, later in this section.

Symmetrix model Highlight 53xx option.

Format type Highlight BULL option.

Telephone numbers Call the Bull Competence Center to obtain these numbers. They are used by the AUTOCALLS function.

Box Serial Number Enter the Cabinet serial number displayed on the cabinet identification label.

Automatic Calls Home

During the installation, leave this test parameter equal to **N** except special cases. To verify the connection, set it to **Y**.

NOTE:
During the CDA 7 installation procedure, set **Enable Automatic Calls Home?** to **N.** After the installation, verify the connection by changing both **Enable Automatic Calls Home?** and **Enable Machine Initiated Interrupts** to **Y**.

Click on `More` to proceed from screen to screen.

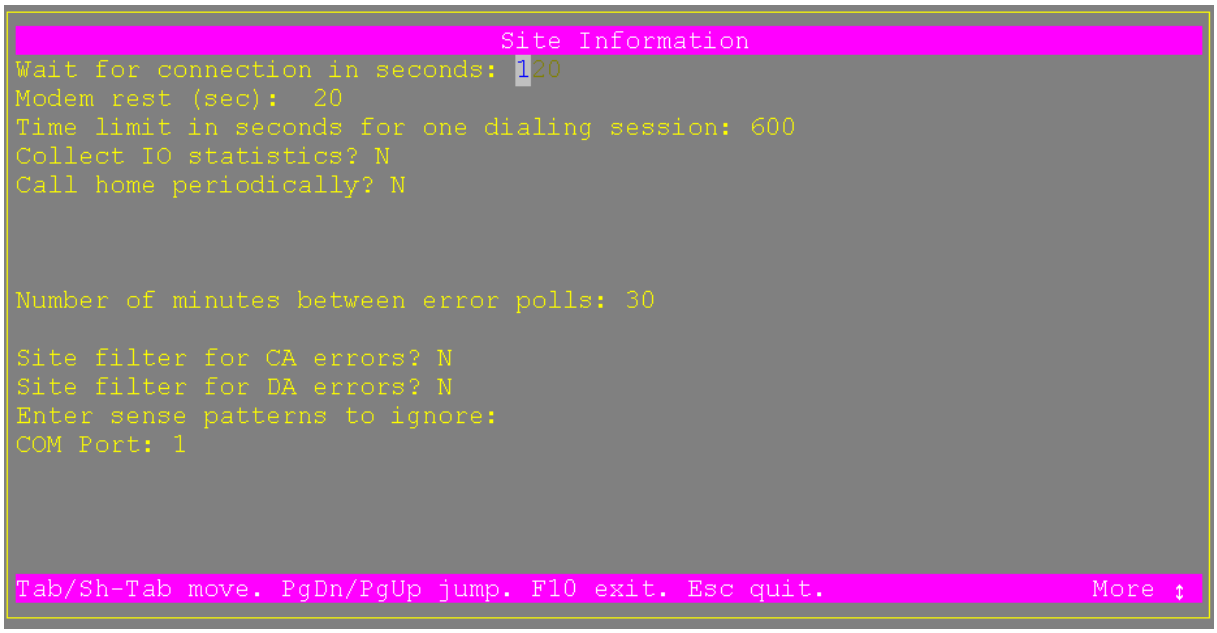


Figure E-6. Site Information - 3

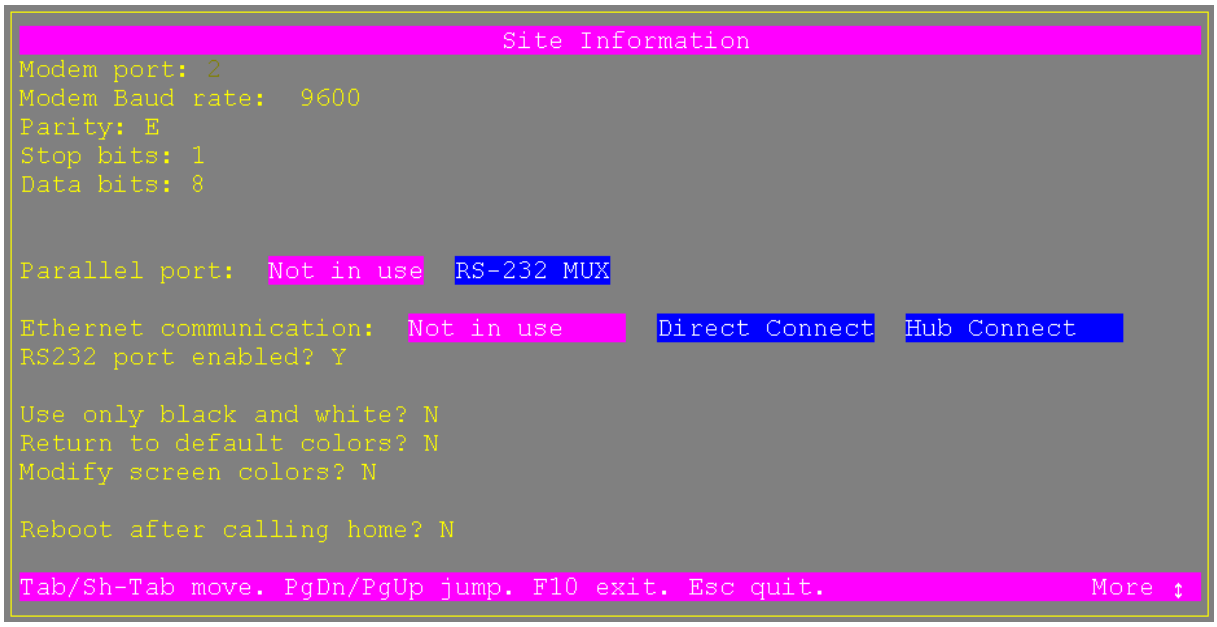


Figure E-7. Site Information - 4

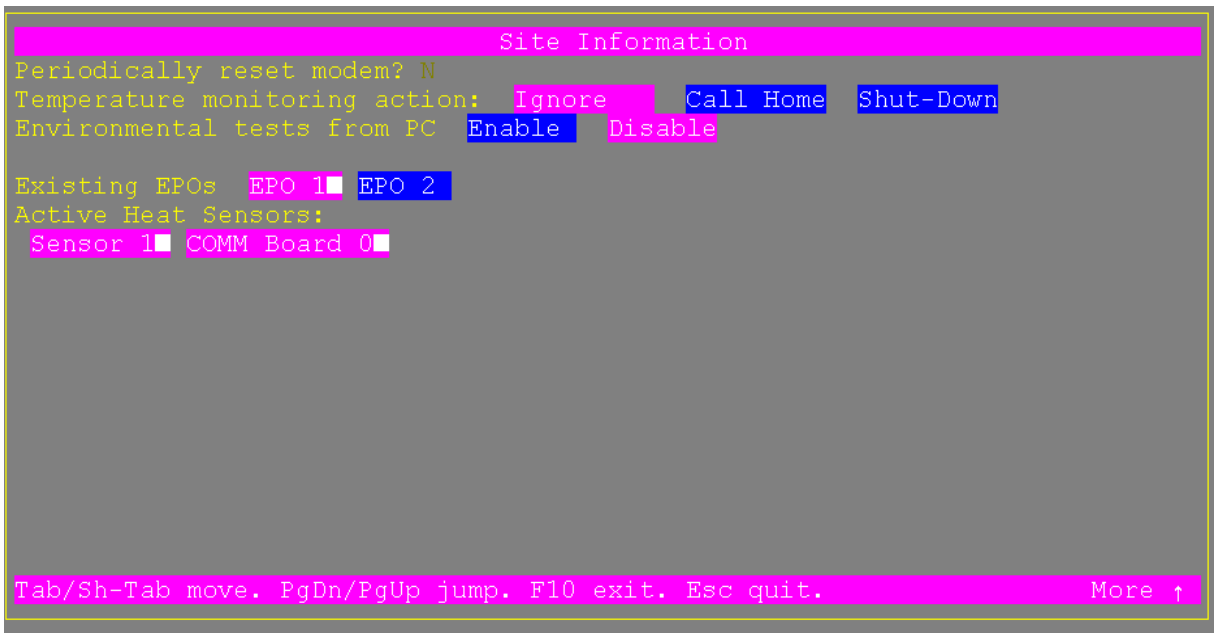


Figure E-8. Site Information - 5

The values of some of these parameters may change in different versions, please refer to the Bull Competence Center to obtain up-to-date parameters.

IMPORTANT:
Remember that the function of the ESCape key is to exit **without modification**.

3. Press **F10** to go back to the **Symm4 Main Window** and save modifications.
4. If you press **ESC**ape the following message is displayed:

```
All changes will be abandoned.
Quit anyway? Y
```

5. Enter **Y** for YES. The default option is **N** for NO.
6. Press Enter to return to MS-DOS.

You can return to the main menu by entering the "loop" command:

```
C:\SYMM4 >    loop
```

E.3.5 Verifying the Site Information

E.3.5.1 Verifying the Customer Name

The Customer name is in the header of the main menu in the miscellaneous information area:

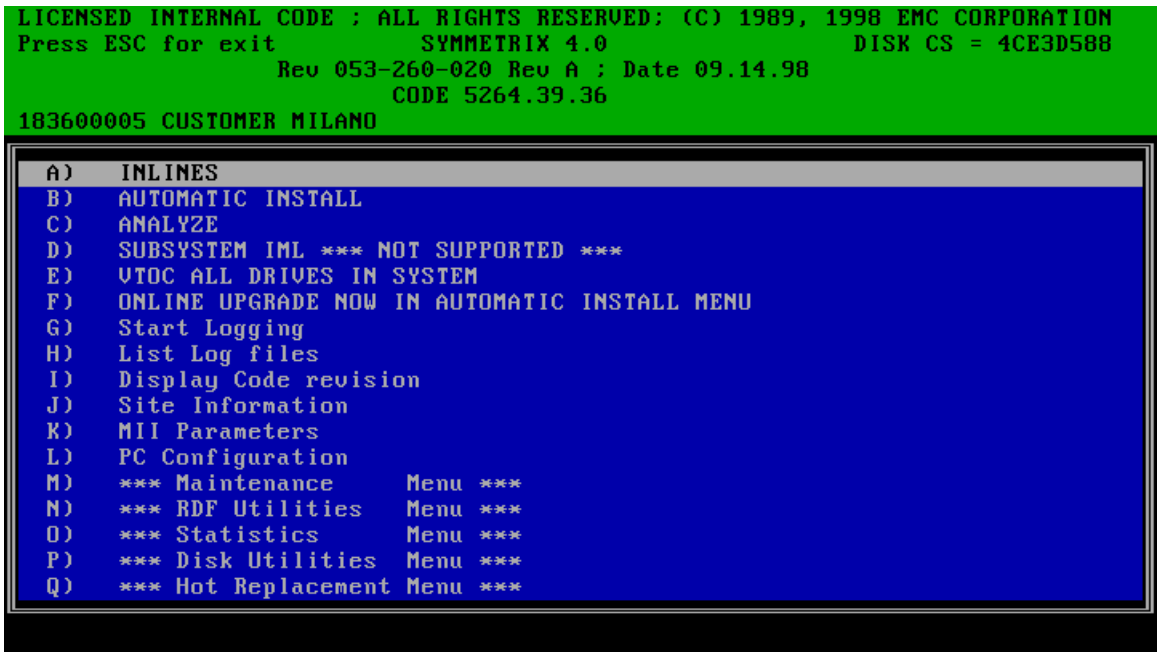


Figure E-9. Customer Name

NOTE:

For the DPS 7000 line, the customer name is made up as follows:

```
G7 + last 4 digits of the serial number + (Blank) +
Customer Name + (Blank ) + Town
```

This allows the AUTOCALL reception center to sort DPS 7000 systems, and to process/direct the message in accordance with the Customer's Maintenance contract.

This customer identifier is used as password (see *Setting the Modem Parameters* described hereafter).

The remote station contains a file in the form of a table defining the correspondence between the system serial number and the type of maintenance contract.

E.3.5.2 Verifying the CDA 7 Serial Number

The cabinet serial number is located on the label glued at the top back of the rack.

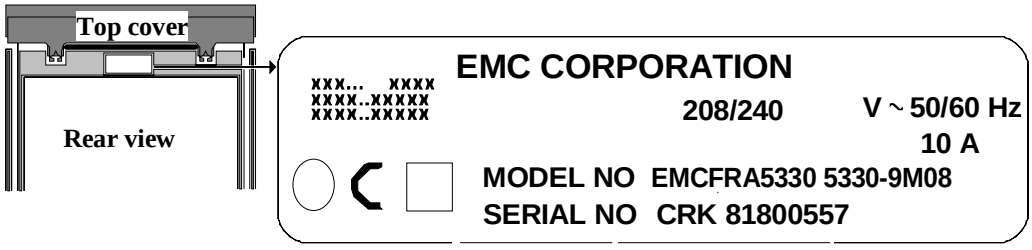


Figure E-10. Cabinet Serial Number

All the information entered in the above screens can be changed at any time by re-selecting **Site Information** in the Main menu.

E.3.6 Setting the Modem Parameters

To set the Modem parameters:

1. Under the **SYMM4** prompt, enter the following command:

   ```
   C:\SYMM4> scsetup
   ```

   The following dialog box is displayed.

SymmCom	Target Configuration
Modem	**Multitech MULTIMODEM**
Comm Port	**COM (3F8 hex- IRQ4)**
Port Rate	**19200**
Connectivity	**Allowed**
Encryption	**OFF**
Call Back disabled	
Prefix if any to access an outide line	
Generate Configuration	**Y**

Is Symmetrix attached to an Ethernet LAN for use as its communication mode ? (Y/N)

Figure E-11. Modem Parameter Setting

2. At first installation, change the password. This password is generally G70xxx, where xxx are the three last digits of the serial number of the CDA 7 subsystem.
3. Answer **N** to the first message: CDA 7 5330 is not attached to an Ethernet LAN. The **Make a Model** window is displayed.
4. Enter **N**. Successive dialog boxes are displayed.

5. To enter the values of the parameters displayed in the above table, answer to these dialog boxes as follows:

Modem	Multitech MULTIMODEM
Comm Port	COM2 (2F8 hex.)
Port Rate	9600
Connectivity	Allowed
Password Change	Enter G7xxx.
Encryption	OFF
Call Back disabled	Press Enter.
Prefix if any to access an outside line	Press Enter.
Generate Configuration	Y

   After the last message, you automatically go back to the DOS prompt.

6. To display the **Symm4 Main window**, enter the `loop` command.
7. Reboot the PC to validate the parameters you have set.

E.3.7 Verifying the CDA 7 Configuration

Bull has defined a number of standard models, for which the configuration (number of disks, number of DIRECTORS, etc.) is precisely determined.

In order to initialize the subsystem correctly, the PC must contain a file describing the installed configuration; it is obvious that this file describes one of the standard configurations (or basic models) specified in Bull/EMC agreements.

This file is called IMPL.BIN in directory C:\SYMM4

In order to proceed this "Automatic Install" command, the PC disk must contain the IMPL.BIN corresponding to the delivered configuration. The name of the binary file is given in the configuration descriptions in:

- Appendix A, *Software Release and CDA 7 Configurations (9 GB Disks)*, or
- Appendix D, *Software Release and CDA 7 Configurations (18 GB Disks)*, or
- Check with your Bull Competence Center.

E.3.7.1 List of Available BIN Files

For the list of available BIN files:

System with 9 GB disks	See paragraph A.2 (Appendix A).
System with 18 GB disks	See paragraph D.2 (Appendix D).

E.3.7.2 Standard Configuration

The standard configuration of a basic CDA 7 contains:

- 2 to 4 SCSI Channel DIRECTORS
- 2 Disk DIRECTORS
- 2 Memory boards
- 8 physical disk-modules

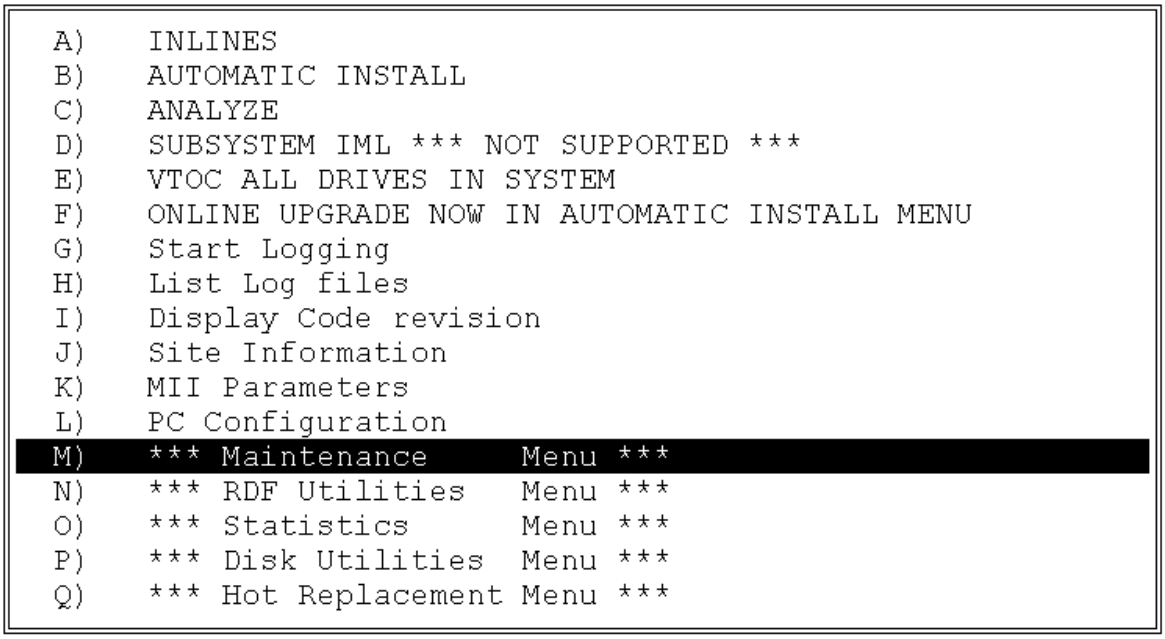
For more information about CDA 7 subsystems, refer to:

- Appendix A, *Software Release and CDA 7 Configurations (9 GB Disks)*, or
- Appendix D, *Software Release and CDA 7 Configurations (18 GB Disks)*.

E.3.7.3 Checking the Configuration

To check the configuration on the laptop, use the following procedure:

1. From the main menu, using the Up/Down arrows select the **Maintenance menu** or press **M**.



2. Using the Up/Down arrows, select **Display Current Configuration** or press **I**.

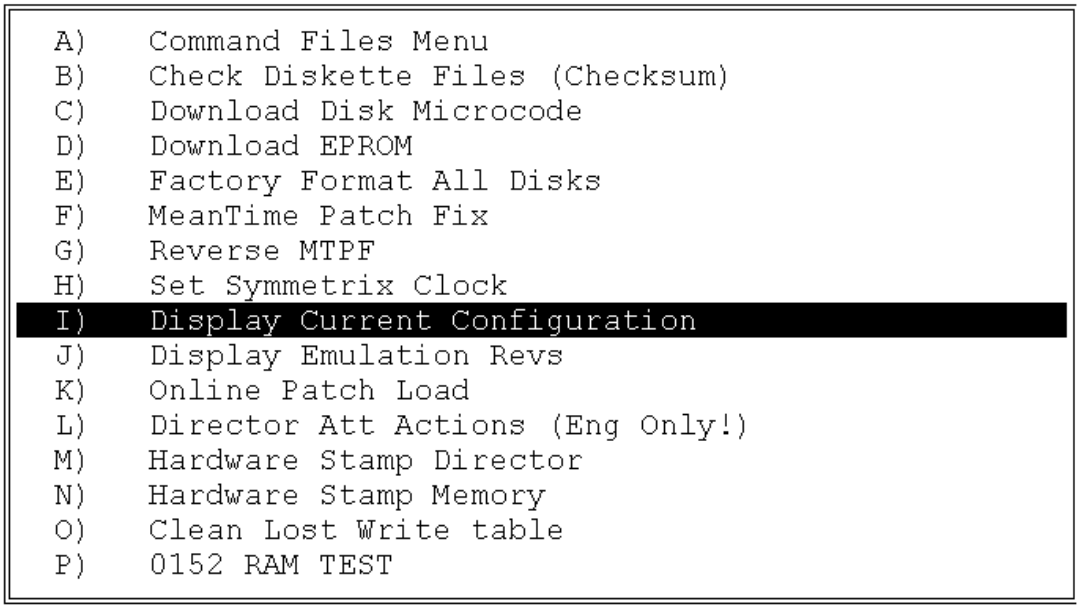


Figure E-12. Checking the Configuration

EXAMPLE RESULT:

```
IMPL File: C:\SYMM4\IMPL.BI1     08/29/97 15:14:04
aced: ACED  version: 4220  internal date: 08/29/1997
================== IMPL HEADER ==================
Host:                           Server/Bull
Emulation:                      FBA
Disk size:                      :Mix
Physical drives:                16
Volumes:                        8
Mirrors:                        8
Memory (MB):                    1024
Hot Spare:                      Disable
Mirroring:                      Enable
RDF:                            Disable
False disconnect:               Disable
Auto restore lost writes:       Enable
Perma-Cache:                    Disable
Prefetch:                       Enable
Record Cache:                   Disable
FIFO / LRU:                     LRU
Cache Fast Write:               Enable
Write Pending Ceiling (%):      80
Cache F.W. Track Ceiling:       32000
9370 Mode:                      Disable
Multiplexing:                   Enable
DA DMA Burst:                   0
CA DMA Burst:                   0
Image:                          09
SCU ID:                         E0
Controller ID:                  30
Diagnostics:                    No
Battery Backup:                 180
Shutoff:                        300
Track Mask:                     FFFF
Processor Instruction Cache:    Enable
Processor Data Cache:           Enable
PC Alive:                       Enable

================== Directors ==================
 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
-------------------------------------------------------------------------------
DA4 |DA4 |    |    |    |    |    |    |    |    |    |    |    |    |SA4 |SA4 |
-------------------------------------------------------------------------------
```

```
================== Detailed Director list ==================
DA-01
Target | Dev. |   Int.    |  Cyl.  |    Label   |      Flags     |
====== | ==== | ======== | ====== | ========== | ============== |
00     | 00   | C0       | 18414  | SYM000     | M1             |
01     | 04   | C1       | 18414  | SYM004     | M1             |
02     | 02   | D0       | 18414  | SYM002     | M1             |
03     | 06   | D1       | 18414  | SYM006     | M1             |
04     | 03   | E0       | 18414  | SYM003     | M2             |
05     | 07   | E1       | 18414  | SYM007     | M2             |
06     | 01   | F0       | 18414  | SYM001     | M2             |
07     | 05   | F1       | 18414  | SYM005     | M2             |

DA-02
Target | Dev. |   Int.    |  Cyl.  |    Label   |      Flags     |
====== | ==== | ======== | ====== | ========== | ============== |
00     | 01   | C0       | 18414  | SYM001     | M1             |
01     | 05   | C1       | 18414  | SYM005     | M1             |
02     | 03   | D0       | 18414  | SYM003     | M1             |
03     | 07   | D1       | 18414  | SYM007     | M1             |
04     | 02   | E0       | 18414  | SYM002     | M2             |
05     | 06   | E1       | 18414  | SYM006     | M2             |
06     | 00   | F0       | 18414  | SYM000     | M2             |
07     | 04   | F1       | 18414  | SYM004     | M2             |

SA-15: (4 Channels)

Channel: A
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
000      | 07       | 20       | 27       | 8        |

Channel: B
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: C
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: D
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
```

```
SA-16: (4 Channels)

Channel: A
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |
000      | 07       | 20       | 27       | 8        |

Channel: B
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: C
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

Channel: D
 1st dev | last dev |  1st chn | last dev |   count  |
======== | ======== | ======== | ======== | ======== |

================== System IDs ==================
00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
=================================================================
E0 | E0 | E0 | E0 | E0 | E0 | E0 | E0 |
```

❑

This shows a configuration with 16 Mirrored disks, and 4 SCSI Channel DIRECTORS. Check that the disks are in the right place.

E.3.7.4 Modifying the Configuration

If the configuration is incorrect, you can ask the Bull Competence Center:

- To download a new configuration file.
- If present on site, to load the configuration file from a standard configuration diskette.

If necessary, copy the file under MS-DOS using the following procedure:

1. Press Escape to exit from the main menu. The C:\SYMM4 prompt is displayed.
2. Rename the IMPL.Bin file as IMPL.Old.
3. Copy the IMPL.Bin file.
4. Return to the main menu:

   ```
   C:\SYMM4 > LOOP
   ```

E.3.7.5 Running Automatic Installation

To run the Automatic Installation:

1. Highlight the **AUTOMATIC INSTALL** option in the Main menu or enter **B**.

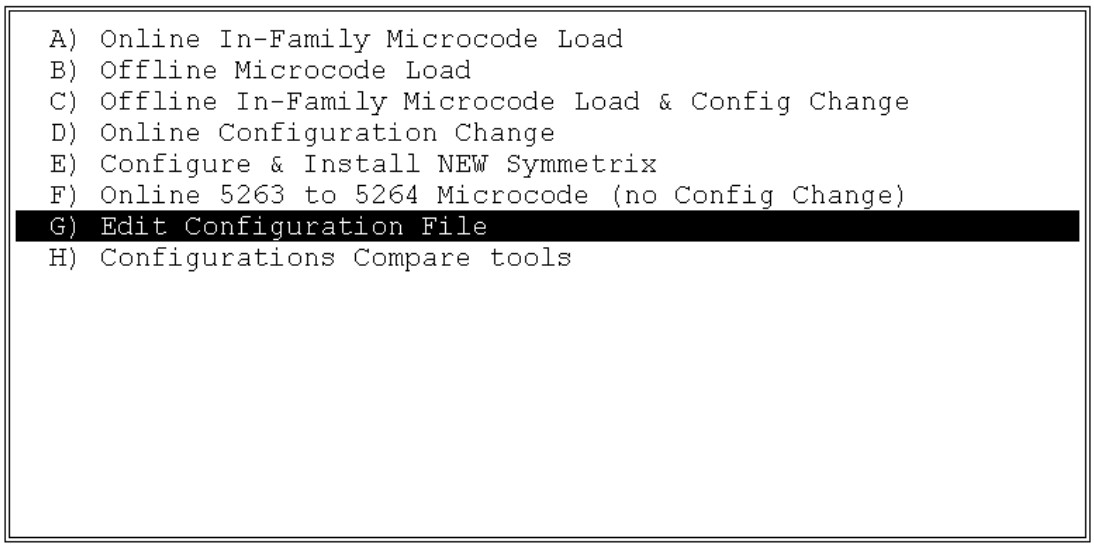
```
A)   INLINES
B)   AUTOMATIC INSTALL
C)   ANALYZE
D)   SUBSYSTEM IML *** NOT SUPPORTED ***
E)   VTOC ALL DRIVES IN SYSTEM
F)   ONLINE UPGRADE NOW IN AUTOMATIC INSTALL MENU
G)   Start Logging
H)   List Log files
I)   Display Code revision
J)   Site Information
K)   MII Parameters
L)   PC Configuration
M)   *** Maintenance     Menu ***
N)   *** RDF Utilities   Menu ***
O)   *** Statistics      Menu ***
P)   *** Disk Utilities  Menu ***
Q)   *** Hot Replacement Menu ***
```

Figure E-13. The Automatic Install Command

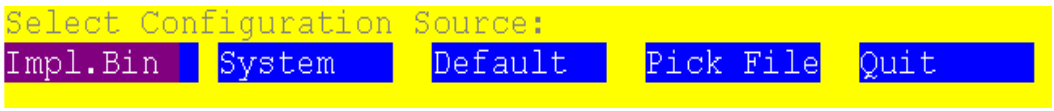
A sequence of screens is displayed.

- In each screen, press the **up/down/right/left** keys to highlight your choice.
- Press **Enter** to validate the highlighted parameter and go to the next line or next screen.

Select **Edit Configuration File** or press **G**.



The following automatic installation screens are displayed:



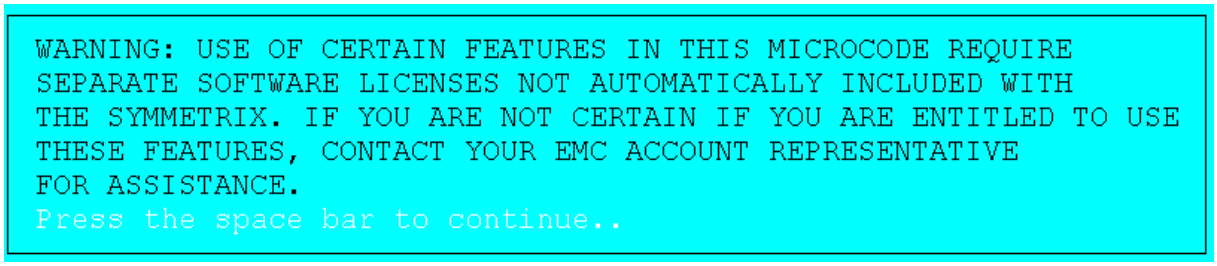


Figure E-14. Automatic Install Screens

2. Select **Impl.bin** and, after the Warning screen, press the space bar, then select **Standard**. The PC reads the IMPL.BIN file from disk.

   – If you choose **System**, the configuration is read from the installed hardware.

   – If it is the first installation of your CDA 7, the procedure terminates by a request to format the subsystem disks.

   The current configuration is displayed:

```
CURRENT CONFIGURATION:
----------------------
D490.BIN:  REVISION: C490DA01;   CHECKSUM: 05346155;   DATE: 06/20/1997;
                          MTPF number: 00004359;    MTPF date: 05/07/1998;
S490.BIN:  REVISION: F490AA01;   CHECKSUM: 0485B20C;   DATE: 06/20/1997;
                          MTPF number: 00004370;    MTPF date: 04/30/1998;

RS232 baud: 38400 8 bits;  Cache Fast Write Ceiling: 80%;
Cache Fast Write Track Ceiling: 32000  Number of Volumes: 4
Time to shut off Battery: 180 Seconds;  Prefetch: YES;
Microprocessor I/D cache: YES/YES;  Server/Bull;  Online Tests;









<S>ave, <C>hange, <D>isplay, <E>dit, <Q>uit? C
```

Figure E-15. Current Configuration

3. Press Enter to accept the default choice, Change.

   Complete the following screens as necessary.

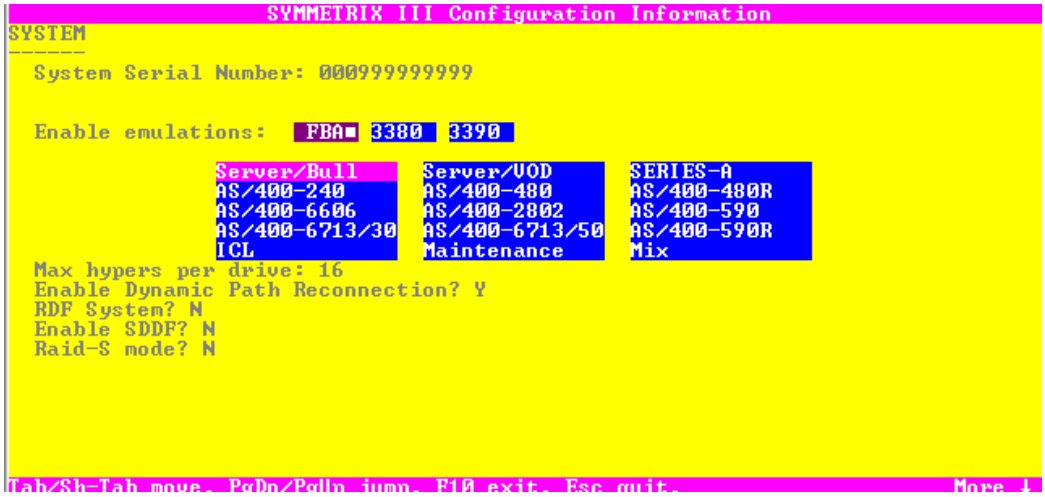


Figure E-16. Installation Dialog (1/3)

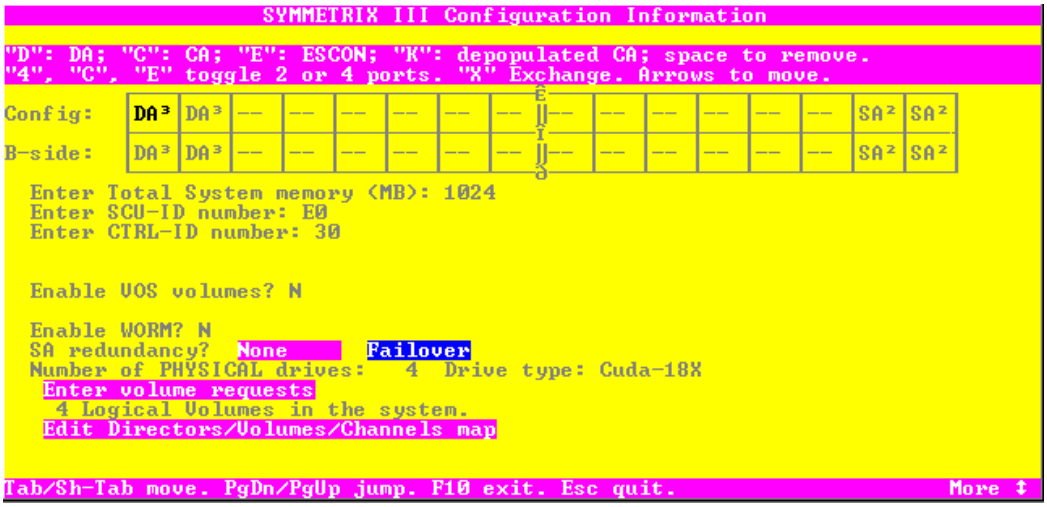


Figure E-16. Installation Dialog (2/3)

Figure E-16. Installation Dialog (3/3)

When the configuration details are correct, press F10 to return to the Current Configuration screen.

Type S for Save and press Enter.

Now that the IMPL.BIN file is correct , you can go on and select the "LOAD" command (option C "Load & Config Change, page E-24).

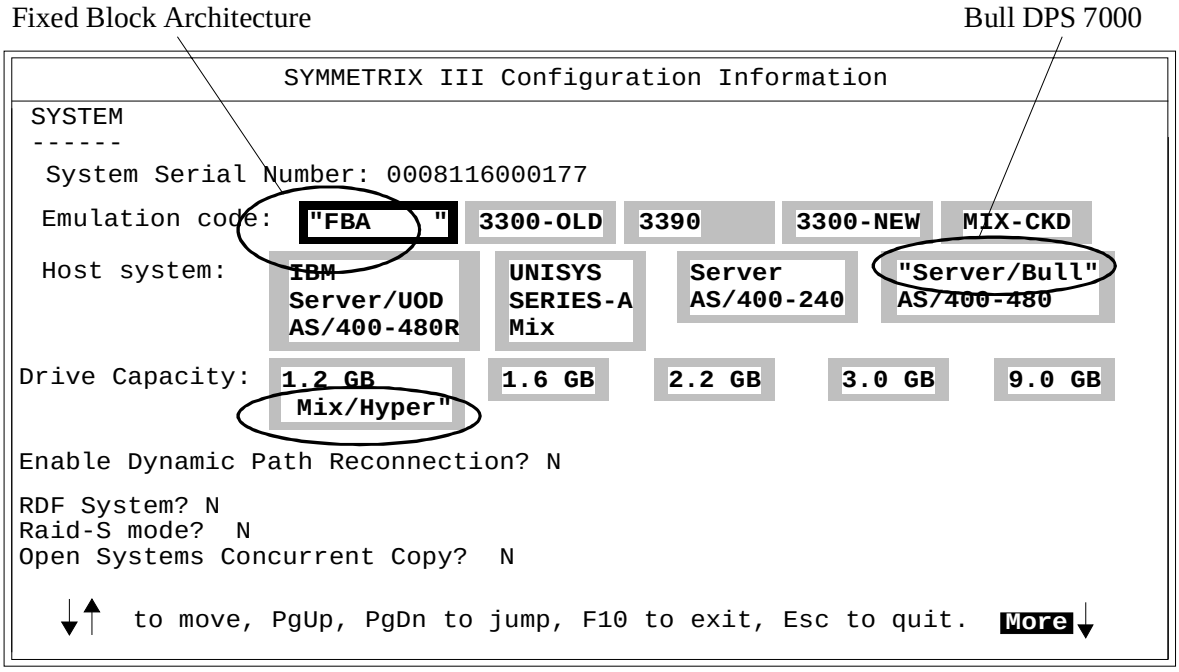


Figure E-17. The Change Command - 1

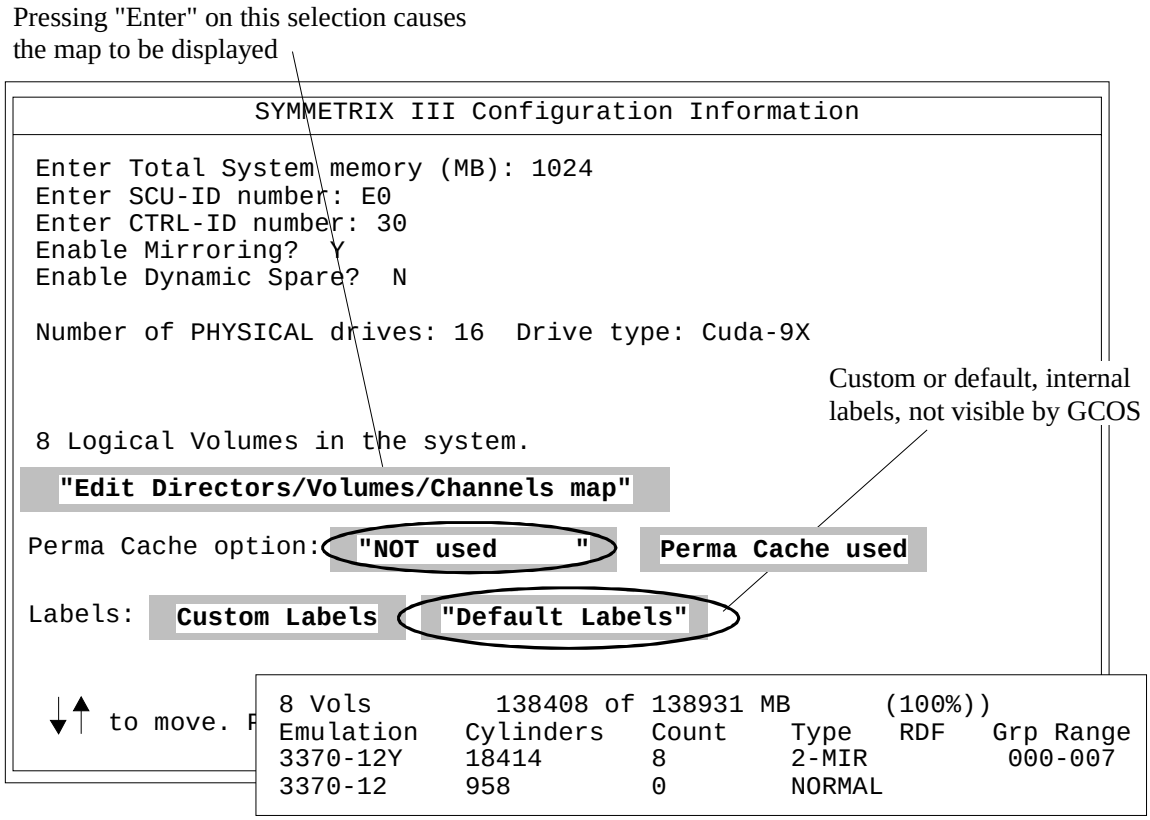


Figure E-18. The Change Command - 2

Highlight the **Edit Directors/Volumes/Channels map** option, and then press **Enter**. A screen displays the distribution of volumes as shown in the figure hereabove.

The following screen contains a representation of physical disks and access channels.

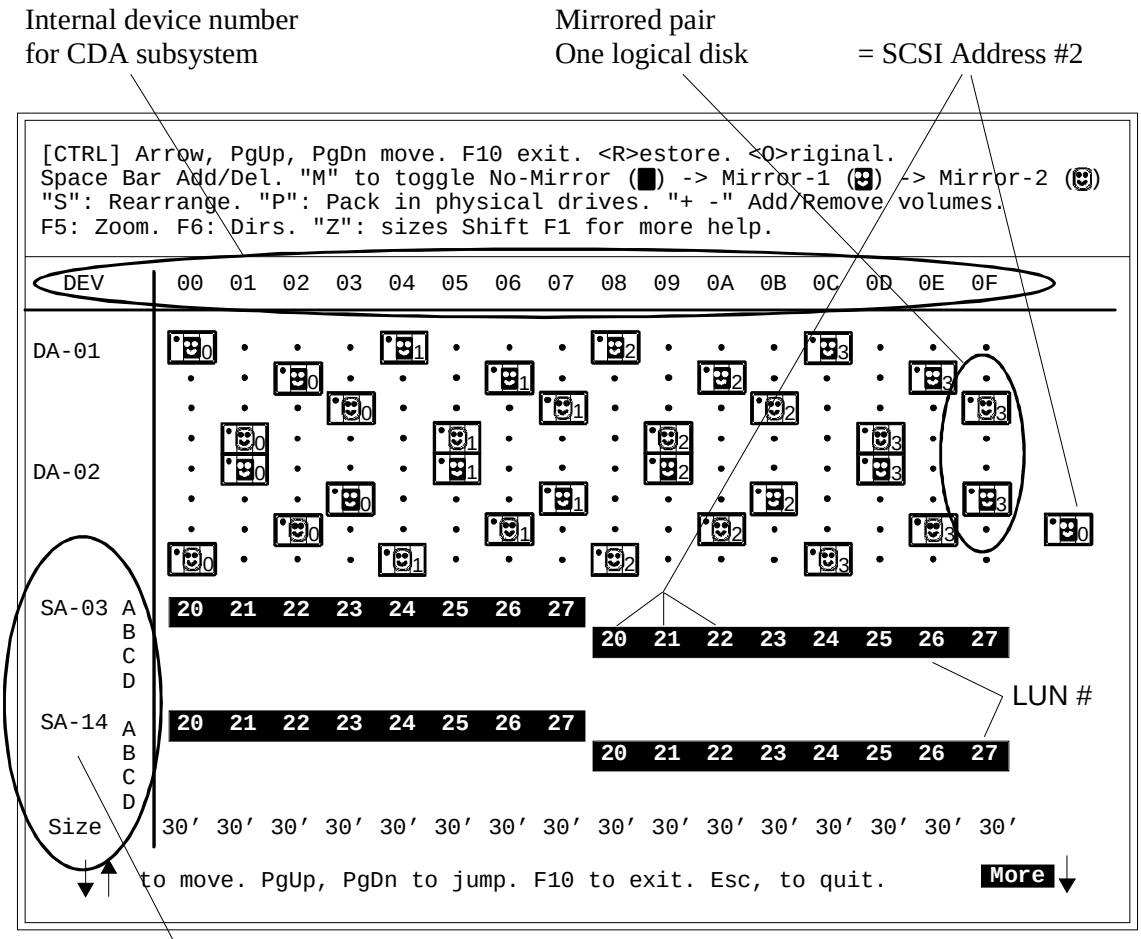


Figure E-19. The Change Command - 3

This shows a system with 32 Mirrored disks, that is 16 logical units (this configuration does not necessarily correspond to a delivered configuration).

Note the SCSI address of each disk on its bus, at the top right of each ideogram.

Documentation about possible commands and symbols used is displayed in the upper part of the screen (Non-mirror, primary or secondary disks).

You can remove a resource (a disk), or modify its status. These commands will be used by the Bull Competence Center if the disk configuration is changed.

The lower part of the screen shows the distribution of logical units per channel.

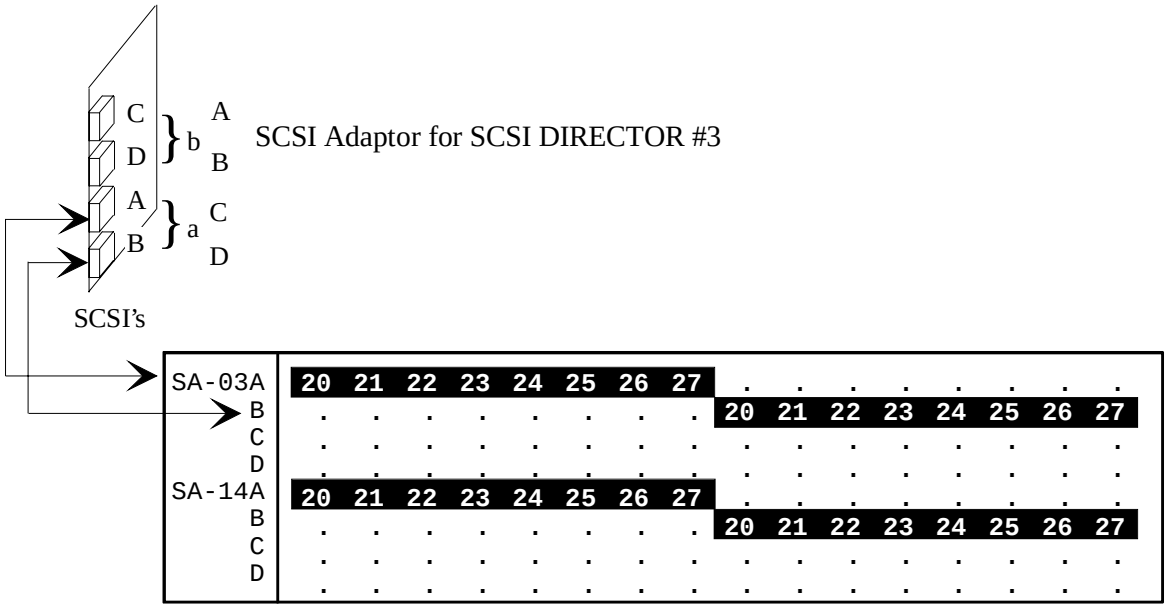


Figure E-20. Distribution of Logical Units

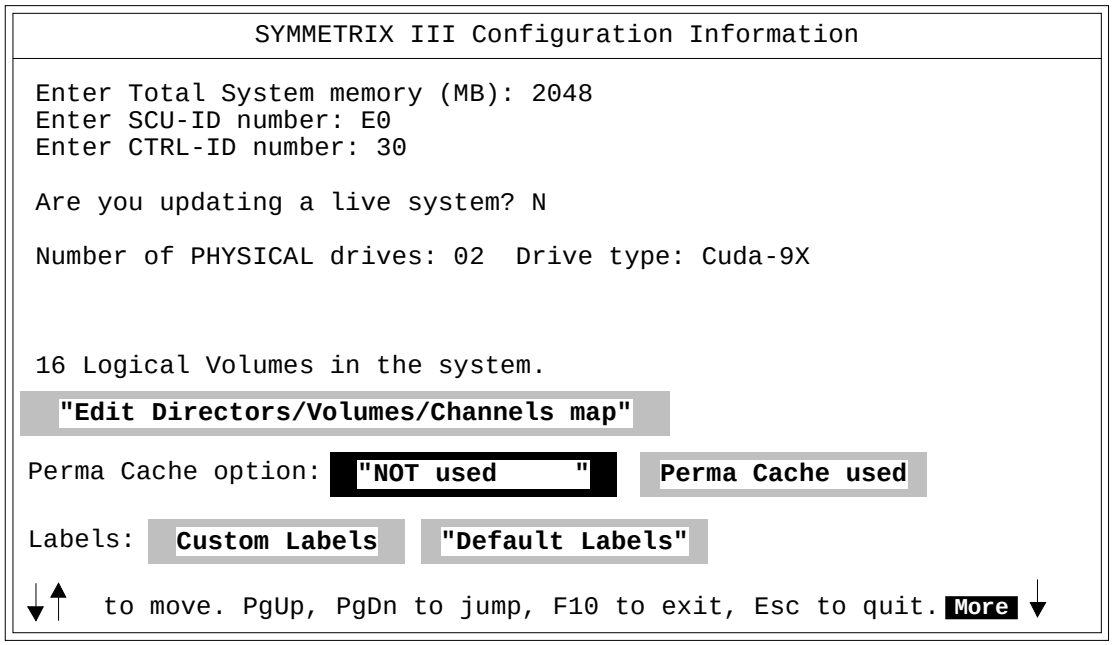
The final part of the screen shows the wiring of the 16 logical units in the subsystem.

1. Press **F10**. The following message is displayed:

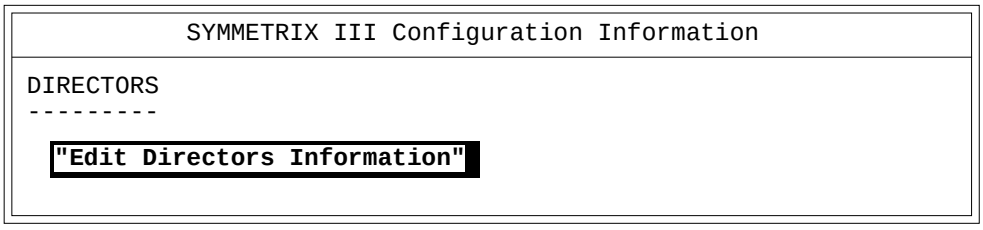
   Channel interface has no active volumes.
   Proceed any way ?

2. Enter **Y**. A dialog box is displayed and asks for a password.
3. Enter the password. This returns the last screen but one, with the cursor positioned on the **Permacache** option.

   The maximum value of the **Number of PHYSICAL drives** is 08.



4. Select the **Default labels** option. This label is internal to the system, of the type SYM000, SYM001, SYM003, etc ., and not visible to GCOS.
5. Press **Enter**. The following screen is displayed.



6. To display information about DIRECTORS, press **Enter**. The following table shows the Director information.

DA-01a					
DA-02a	T ■	L ■	W ■	S ■	E ■
	T ■	L ■	W ■	S ■	E ■
SA-15a	T ■	L ■	W ■	S ■	E ■
	T ■	L ■	W ■	S ■	E ■
SA-15b	T ■	L ■	W ■	S ■	E ■
	T ■	L ■	W ■	S ■	E ■
SA-16a	T ■	L ■	W ■	S ■	E ■
	T ■	L ■	W ■	S ■	E ■
SA-16b	T ■	L ■	W ■	S ■	E ■
	T ■	L ■	W ■	S ■	E ■

END OF TABLE

NOTES:

1. Parameters have a black or green square to show whether they are validated or not. Use the space bar to toggle the selections.
2. The correct parameters are validated by loading the binary file but you need to check in the event of replacement of SCSI directors.

Remember that the MNCONF "LABEL" command will give almost the same layout showing the distribution of disks on each SCSI channel, for cabling the subsystem and the name of the binfile.

1. Press **F10**. A dialog box is displayed.
2. Enter the password and the first screen in which you selected **Change** reappears.

```
CURRENT CONFIGURATION:
----------------------
DA Code:     REVISION: CC73DA01; CHECKSUM: 01EF2E96: DATE: 01/27/1995
             MTPF number: 000059C1; MTPF date: 07/06/1995;
SA Code:     REVISION: FB73AA01; CHECKSUM: 018DCCBC: DATE: 01/27/1995
             MTPF number: 000059C7; MTPF date: 07/06/1995;
RS232 baud: 33400 8 bits; Cache Fast Write Ceiling: 80%;
Emulation: FBA:Mix; Time to shut off Battery: 120 Seconds; Mirroring: YES;
Prefetch: Dynamic Spare: NO; Microprocessor I/O cache: YES/YES;
Server/Bull: Online Tests;

<L>oad, <S>ave, <B>oth, <C>hange, <D>isplay, <A>dvanced, <Q>uit? C
```

3. Select **Both** (Save and Load). The dialog box asking for the password is displayed.

   You save the configuration with any changes you have made on the PC disk, and load the MICROCODE in DIRECTORS.

4. To format the disk-drives, go to the main menu and select **VTOC ALL DRIVES IN SYSTEM** or enter **E**. Depending on the configuration, this operation will take some time (about 20 minutes).

   At the end of this operation your system is initialized and loaded, but the DIRECTORS are still **disable**.

5. Under MS-DOS, save the IMPL.BIN and SITEINFO.DAT files onto a diskette. Keep this diskette carefully as a backup.

To do this:

1. Press **Escape** to exit the main menu.
2. Confirm your request. The C:\SYMM4 prompt is displayed.
3. Insert the diskette.
4. Enter the following command:

   ```
   C:\SYMM4 > COPY C:\SYMM4\IMPL.BIN A:\<goodfile.bin>
   ```

5. Return to the main menu with the command:

   ```
   C:\SYMM4 > LOOP
   ```

E.3.8 Declaring the CDA 7 Subsystem under GCOS 7

The version of FGF supporting CDA 7 subsystem does not have any new commands for management of these subassemblies.

E.3.8.1 Global Method

Firstly, you should be aware that if MSC4 subsystems are present in the configuration, MNCONF will assign slots occupied by the PxM cards to WSP cards, and that substitution will be compulsory.

LSS subsystems (and channels and disk external identifiers) will not be assigned.

Other PRM or NCC7 type cards may be moved.

The procedure is as follows:

1. Starting from the running configuration (CONFIG_OLD), execute a MODIFY command under MNCONF and add CDA subsystems to create a new configuration (CONFIG_NEW), based on the original configuration.

   The result of this operation gives:

   – The future slots for WSP cards.
   – The list of IOM cards to be removed so that WSP cards can be installed.
2. In the new configuration, CONFIG_NEW, use the "IOM" command to look for possible slots for cards which were removed in the previous step.
3. In CONFIG_OLD, execute one or more MOVE commands to the slots found in step 2, for the IOMs deleted in step 1, in order to make room to install the WSP cards. At the end of this step, a configuration will be created which may be called CONFIG_TEMPRY and which will contain the necessary free slots.

4. In CONFIG_TEMPRY, execute a MODIFY command to insert WSP cards supporting CDA subsystems.

This creates the final configuration, for example named CONFIG_MYCDA.

E.3.8.2 Declaring the CDA 7 Subsystems

Non-coupled system

Definition: a "physical group" of disks always contains 8 mirror disks or 4 RAID-S disks.

The following is a standard declaration of a configuration containing 8 physical disks.

```
(1) N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :
      CDA #01
      Number of 4-disk physical groups RAID-S
                        (0)                        :
      Number of 8-disk physical groups MIRROR
                        (1 )                       :1
    -> Generated MS external names:
(2)     Gr1 (01 02 03 04)
      CDA #02
      Present?          (0)                        :
    --> Generated WSP-R IOMs (CDA7):
(3)   Iom WSP-R slot 15 PX43
       Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
      Do you confirm (Y, N or / for exit)? (Y)     :Y
(4) *** previous iom PSM   slot 06 PX43 is lost
N:
```

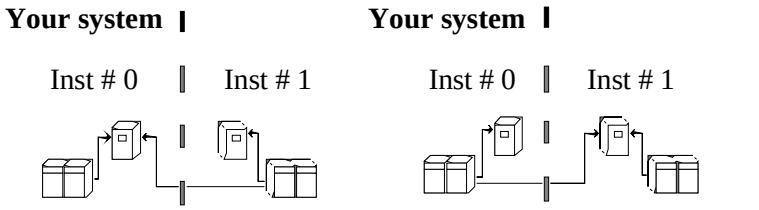
NOTE:
Number of 4-disk physical group RAID-S is always positionned at 0.

Coupled systems

For a coupled system, answer "1" to the second question in the following sequence:

```
 N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :1
.........etc .....
```

Coupling refers to both of the following possibilities:



From inst # 1 to "myinstall" From "myinstall" to install # 1

NOTE:

Cabinets that are accessed by two installations are incorrectly called "4 path" since each installation can have only two paths.

First case: your system is accessed by installation #1

```
N: MD OLD NEWCDA CDA7
   CDA7
     CDA7 present?     (0)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 4-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :1
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (0 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
      Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04
      port 0,coupled
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Second case: your system accesses installation #1 :

```
N: MD TEMPCDA REMPCDA1 CDA7
   CDA7
     CDA7 present?     (1)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 4-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (4 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :1
     Number of coupled LCs for Gr1
                       (0 )                       :8
     Number of coupled LCs for Gr2
                       (0 )                       :
   -> Generated MS external names:
       Gr1 (YQ YR YS YT YU YV YW YX)
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
      Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
     Iom WSP-R slot 12 PX40
      Port 0 cab #01 Gr #1 linked to WSP-R PX57 slot 01
      port 0,other
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Special case of the NCC card

The NCC7 card occupies two slots, therefore there must be two consecutive free slots.

There you may need to do an additional "MOVE" to release a second slot.

E.3.8.3 Running the LABEL Command

NOTE:
See the figure in chapter 1 for the location of SCSI adapters and port assignments.

The LABEL command has been modified to support CDA 7 subsystems.

It clearly and unambiguously gives From/To information for SCSI cables between IOSS and the CDA 7 cabinet.

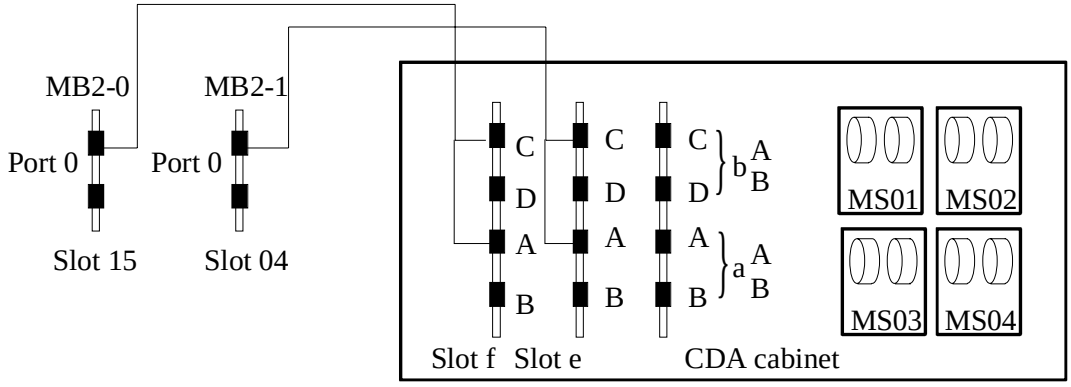
EXAMPLE 1 WITHOUT COUPLING:

Configuration: 8 mirrored disks = 4 logical volumes

```
*** LABELS and CDA7 connections: MYCDA ***

Iom WSP-R slot 15 PX43
 port 0 connected to Scsi Adaptor slot f port A cda #01
Iom WSP-R slot 04 PX14
 port 0 connected to Scsi Adaptor slot e port A cda #01

*MB2-0-15-2  *   *MC01 SA f-A  *   *MB2-1-04-2  *   *MC21 SA e-A
*            *   *MS01         *   *MS02        *   *MS03        *   *MS04
```

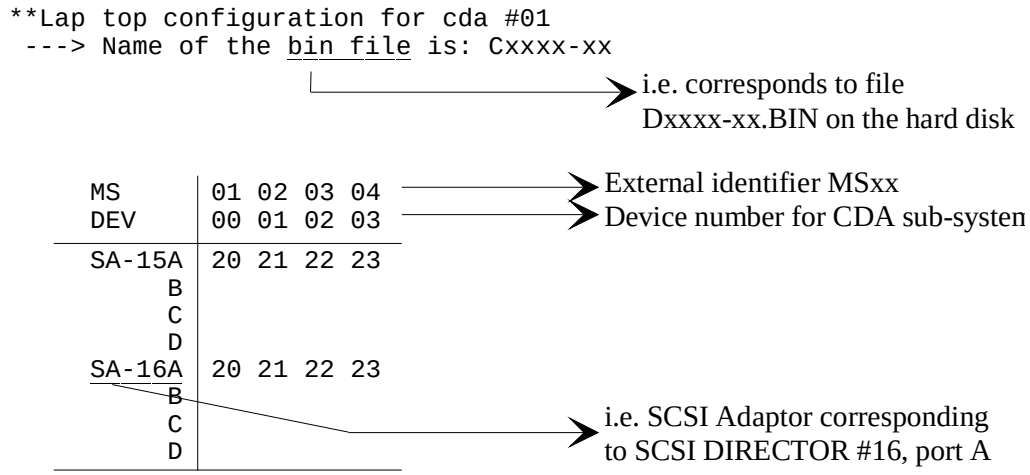
Controller name

Slot #
MB2 #
Port
Slot
SCSI Adapter



❑

EXAMPLE 2 DISK CONFIGURATION ON LAP-TOP:



❑

The file name Dxxxx-xx.BIN must correspond to one of the typical configurations.

The active file IMPL.BIN in the PC must be identical.

CAUTION:

The information that you note is the only unambiguous record of the correspondence between external identifiers of logical disk units (MS), seen from GCOS, and physical disk drives (DEV) seen from the CDA 7 cabinet Lap-Top.

You must keep a copy of this document and send another copy to the Bull Competence Center.

EXAMPLE 3 WITH COUPLING:

This is a configuration of 16 mirrored disks belonging to a cabinet in another installation. The connection of the coupled disks is shown in the label of System 0.

```
   Iom WSP-R slot 19 PX47
    port 0 connected to Scsi Adaptor slot 0 port D cda #01 other instal
   Iom WSP-R slot 08 PX10
    port 0 connected to Scsi Adaptor slot 2 port D cda #01 other instal

From              To
   *MB2-0-19-2  * *MC1M SA d-DA  * *MB2-1-08-2  * *MC3M SA 2-D
   *inst #0     * *inst #1       * *inst #0     * *inst #1
   *            * *MS YH         * *MS YI       * *MS YJ         * *MS YK
   *            * *MSYL          * *MS YM       * *MS YN         * *MSYP
```

External identifier

The Port switches on the SCSI adapters must be set to Enable and Termpower must be set to VCC. See *Rear Card Cage - SCSI Adapter Switch Positions* in the *Introduction* which is also followed by information on the correct way of connecting the cables (figure *SCSI Cable Connection*.)

❑

F. Installing the CDA 7 5630 with Microcode Release 5265

This Appendix concerns the CDA 7 with Microcode Release 5265. This release of the Microcode can run on systems with 18 GB or with 36 GB disks.

The following table shows the relationship Microcode Release <-> Disk Size.

Disks	**Release 5265**
18 GB	Yes
36 GB*	Yes

* : Open system only

F.1 Before Installation

Before installing the CDA 7:

1. Disconnect the AC power supply cable from your machine before doing any work (except for specific hot replacements of elements).
2. Do not switch the system on if the ground conductor is disconnected.
3. Take anti-static precautions (bracelets, anti-static packaging) when working on electronic parts.
4. Unless specifically mentioned in the documentation, do not connect or disconnect elements (for example cards), when live.
5. Allow the temperature to stabilize before unpacking the cabinet.

F.2 Installation Conditions/auxiliaries

These characteristics are mentioned as a reminder, and are given in the *CDA 7 5630 Site Preparation Guide.*

Electrical environment:

- 220 V - 20 A single phase, output by an electric box (International).
- Maximum distance from box 6 feet (2 m)
- 20 A (International) breaker
- Maximum consumption 1.547 kVA

Physical dimensions and size:

- Height: 46 inches (116.9 cm)
- Width: 21 inches (53.3 cm)
- Depth: 36 inches (91.4 cm)
- Floor area: 15.75 sq.ft. (1.4 square meters)
- Service width in front and behind: 36 inches (91.4 cm)

Heat dissipation:

5,174 BTU/hr in maximum configuration

F.3 Installing the CDA 7 on a Host System

Two ways are possible:

- Installation of a CDA 7 subsystem in an existing configuration. This case is described hereafter.
- Installation of a CDA 7 subsystem delivered with a new system. For more information, refer to the On-Line Help of the **BUILD P2** command of **FGF**.

F.3.1 Unpacking the CDA 7

Two packages are delivered on pallets:

- the first package contains the subsystem (the largest package).
- the second package contains:
  - the modem and its power supply
  - the documentation
  - tools and miscellaneous cables

You will find two self-adhesive envelopes on the main cardboard box containing:

- depalletizing instructions
- a sheet with the serial numbers of the cards and disks delivered (keep this sheet)

Contents of the second package

There are the following main elements:

- the AC power source cable for the subsystem
- the modem connection cable
- a media box (MICROCODE) **The media box must be present on the site**.
- a 5/16 hexagonal spanner
- a small insulated screwdriver (for handling rotactors)
- a plastic tool (for card resets)
- a spanner with expansion rod to access connection nuts
- a black/red connection cable used as extension cable if the battery is taken out of the cabinet
- loopback connectors for Bus&Tag cables
- an antistatic bracelet

Depalletizing the subsystem

1. Check the "TIP-N-TELL" indicator on one side of the main package.
2. Unpack the box, and cut the protection film to access the cabinet on its pallet.
3. Open the front and rear doors.
4. Release the cabinet by removing the shipping brackets, you will need to remove six screws and six bolts, see the figure below.

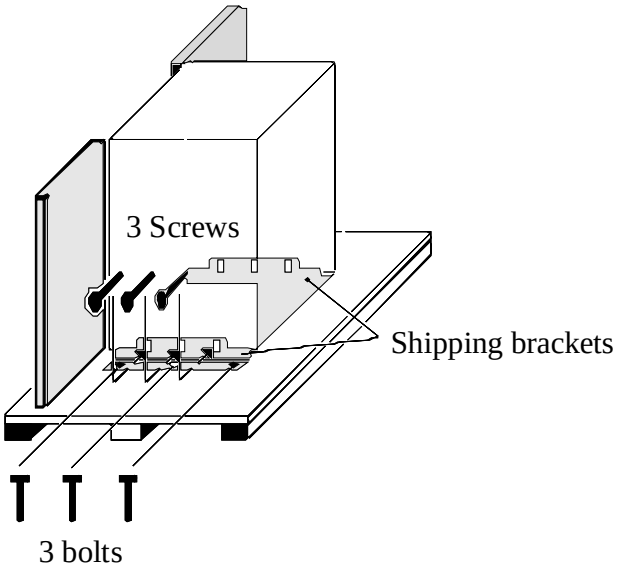


Figure F-1. CDA 7 5630, Removing the Shipping Brackets

5. Close and lock the front and back doors.
6. Put the lowering ramp into position.
7. Lower the cabinet carefully (caution, weight exceeds 300 kg).

Precautions

Make sure that you have locked the doors before tilting the cabinet onto the palletization rails. If you fail to do this, the front door (for example) could open under its own weight and be seriously damaged when it touches the floor.

Check the shock indicator (shockwatch): when the front door is opened, check the shock indicator (a small box) located inside the door at the top right. Steel balls held in place by springs must be in the position on the drawing above. If they are not, the cabinet has undoubtedly been subjected to a shock with sufficient amplitude to make the balls fall, and you may need to make a more detailed inspection.

Open the doors

Use the hexagonal spanner supplied in the tool box to open the doors.

F.3.2 Powering Up the CDA 7

F.3.2.1 Electrical Connection of Subsystem

1. After opening the back door, check that the PDM breakers (EPO and AC), the PS1 and PS2 breakers and the BATTERY switch are OFF.
2. Check that the circuit breaker, (customer panel), for the AC power connection box is OFF.
3. Connect the cabinet to the connection box using the AC power cable supplied in the tool pack.

F.3.2.2 Connecting the Modem

The modem is connected to COM2 on the PC through the COM card. To connect the Modem, refer to *Connecting the Modem* earlier in this document.

F.3.2.3 Switching On the CDA Subsystem

Preliminary checks:

- Check that the "slider switch" at the top of the COM card is in the down position.
- Check on the operator panel that the DIRECTORS are set to DISABLE.

Procedure in the following order:

1. Electrical control panel circuit breaker ON.
2. PS1 and PS2 breaker ON.
3. BATTERY switch ON.
4. EPO switch ON.
5. AC switch ON.

You can monitor the subsystem loading traffic on the front of the DIRECTORS. Loading can takes about 25 minutes, and is finished when the DIRECTORs display **0F**.

NOTE:

A faulty DIRECTOR or a DIRECTOR which has been badly initialized displays the value **DD.** In this case, restart the operation or contact support.

In this case, "loading" includes initialization of the hardware and loading the MICROCODE (IML = Initial MICROCODE Loading).

If there is no traffic on DIRECTORS, check that the PC is actually switched on.

F.3.3 Setting the PC Parameters

To set the PC parameters: use the Up arrow to highlight **PC Configuration** or press **L**.

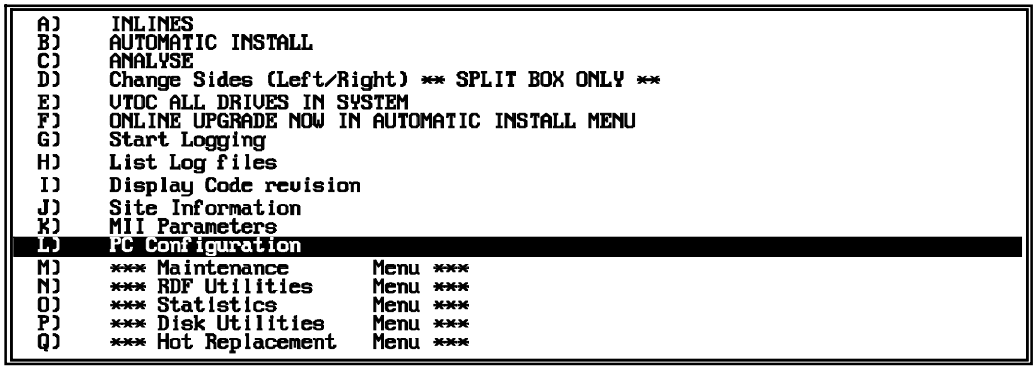


Figure F-2. PC Configuration - 1

The following screen is displayed:

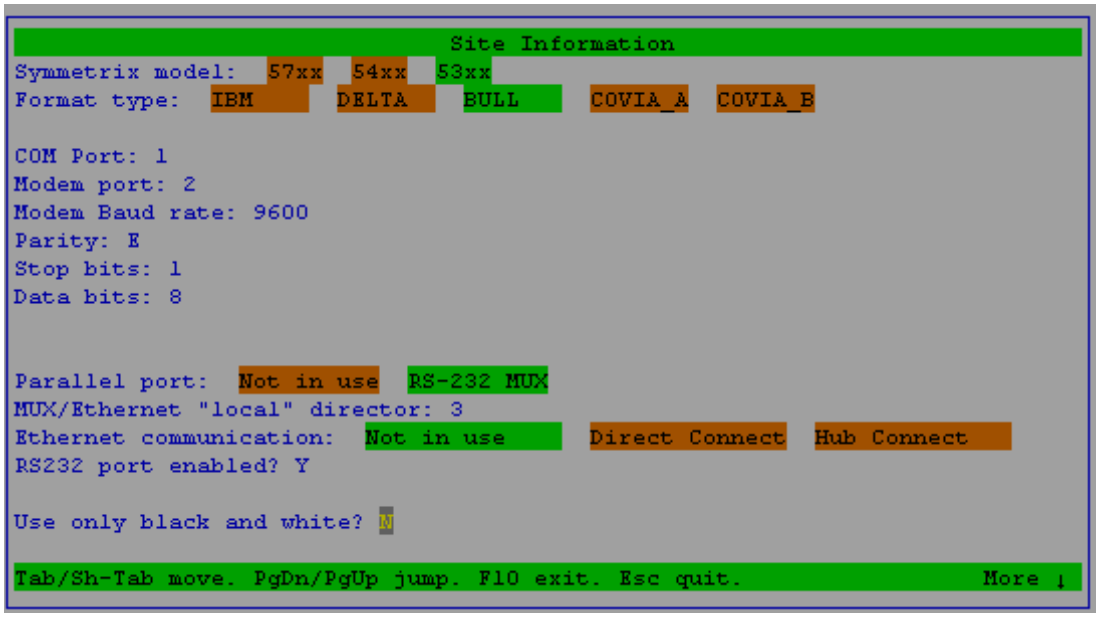


Figure F-3. PC Configuration - 2

This screen displays the standard values of the parameters. If you select the Parallel port:

- **RS-232 MUX**, the following line displays: **MUX "local" director: 1** and the cursor goes automatically to this line. Use the RS-232 port when you change the DA-01. To do this, refer to *Replacing the DA#1 from the Lap-Top Access Change* earlier in this document.
- **Not in use**, the following line is **Use only black and white**?

You navigate in the screen by pressing the Up/Right/Down/Left keys. Select each parameter in turn to set the values shown above and then press ENTER.

- You can use the **F10** key at any time to quit and save modified/displayed values.
- You can use the **ESC** key at any time to exit from the screen ignoring all modifications.
- Values shown between quotes are those active when you enter the screen or chosen in the modification sequence.

F.3.4 Setting the Site Information

To enter the site information:

1. In the **Symm4 Main Window**, select **Site information** option or enter **J**.

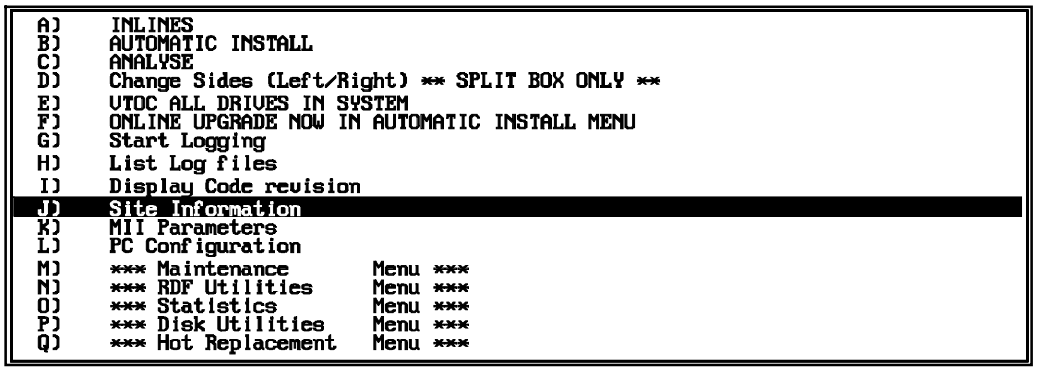


Figure F-4. Site Information - 1

The following screen is displayed:

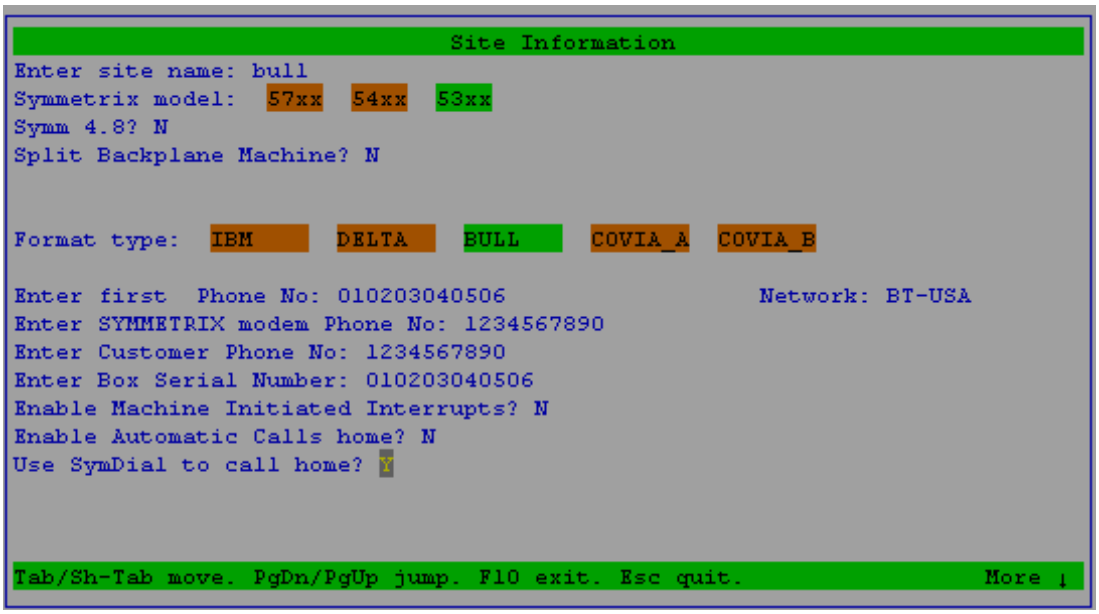


Figure F-5. Site Information - 2

To enter the three phone numbers, call the Bull Competence Center.

2. Enter the following parameters:

Enter site name: This name begins G7 followed by the four last digits of the serial number on the label located on the rear side of the cabinet. For more information refer to the *Cabinet Serial Number*, later in this section.

Symmetrix model Highlight 53xx option.

Format type Highlight BULL option.

Telephone numbers Call the Bull Competence Center to obtain these numbers. They are used by the AUTOCALLS function.

Box Serial Number Enter the Cabinet serial number displayed on the cabinet identification label.

Automatic Calls Home

During the installation, leave this test parameter equal to **N** except special cases. To verify the connection, set it to **Y**.

NOTE:

During the CDA 7 installation procedure, set **Enable Automatic Calls Home?** to **N.** After the installation, verify the connection by changing both **Enable Automatic Calls Home?** and **Enable Machine Initiated Interrupts** to **Y**.

Click on `More` to proceed from screen to screen.

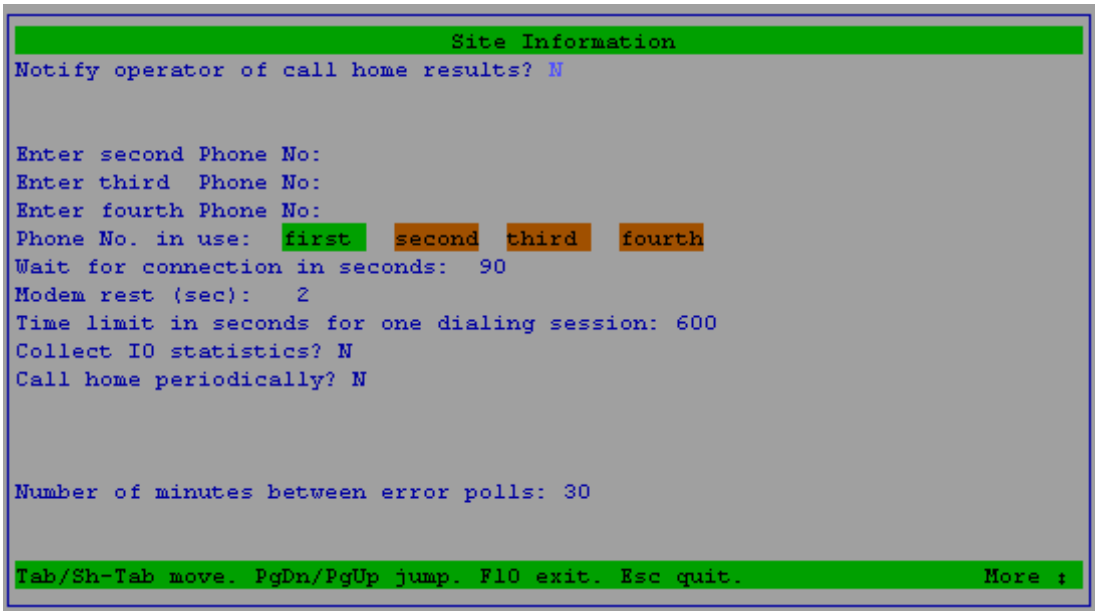


Figure F-6. Site Information - 3

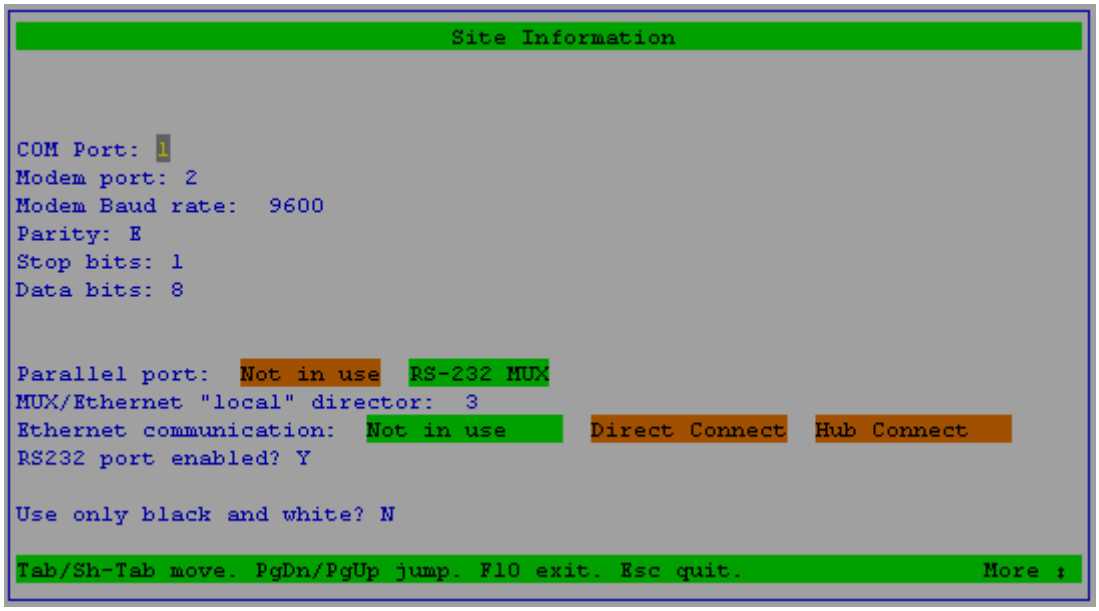


Figure F-7. Site Information - 4

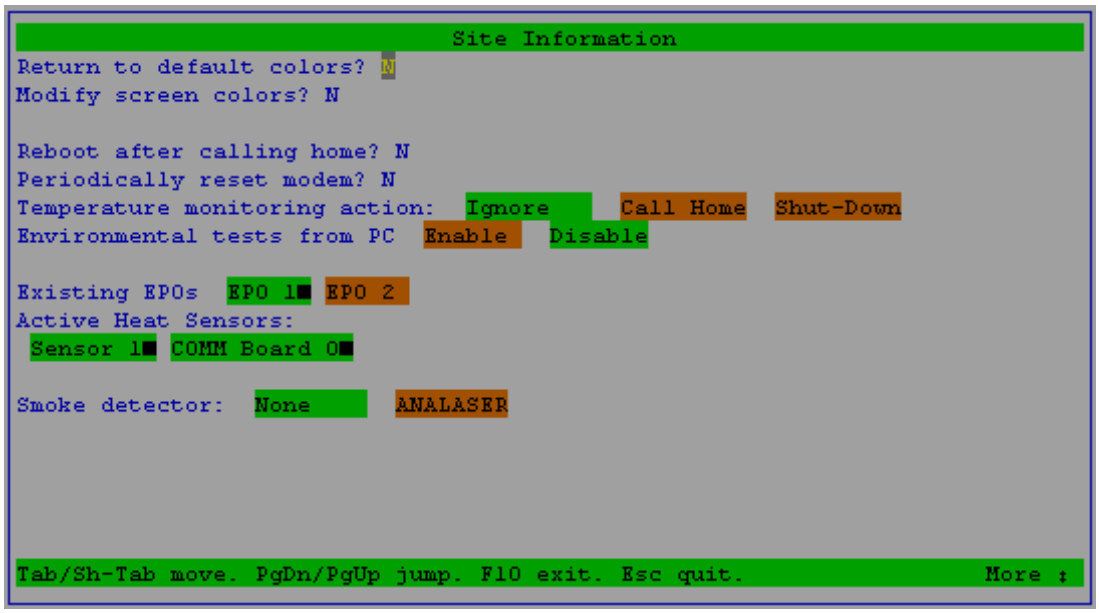


Figure F-8. Site Information - 5

The values of some of these parameters may change in different versions, please refer to the Bull Competence Center to obtain up-to-date parameters.

IMPORTANT:
Remember that the function of the ESCape key is to exit **without modification**.

3. Press **F10** to go back to the **Symm4 Main Window** and save modifications.
4. If you press **ESC**ape the following message is displayed:

```
All changes will be abandoned.
Quit anyway? Y
```

5. Enter **Y** for YES. The default option is **N** for NO.

NOTE:
To return to MS-DOS press Enter.

From DOS, You can return to the main menu by entering the "loop" command :

C:\SYMM4 > loop

F.3.5 Verifying the Site Information

F.3.5.1 Verifying the Customer Name

The Customer name is in the header of the main menu in the miscellaneous information area:

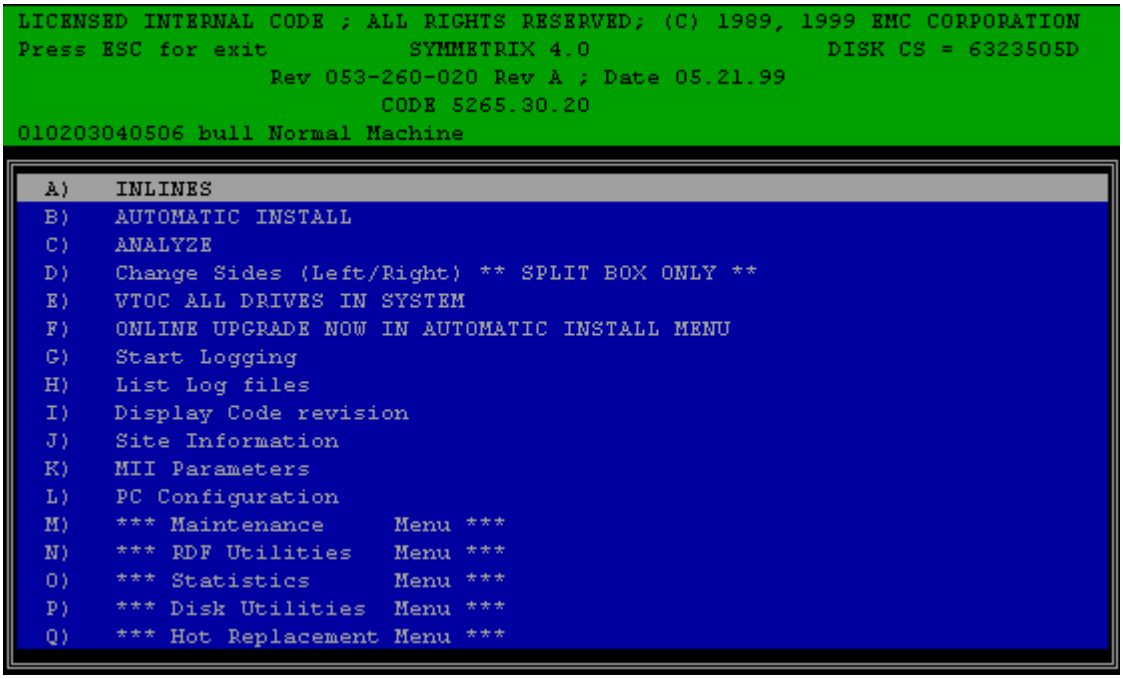


Figure F-9. Customer Name

NOTE:

For the DPS 7000 line, the customer name is made up as follows:

```
G7 + last 4 digits of the serial number + (Blank) +
Customer Name + (Blank ) + Town
```

This allows the AUTOCALL reception center to sort DPS 7000 systems, and to process/direct the message in accordance with the Customer's Maintenance contract.

This customer identifier is used as password (see *Setting the Modem Parameters* described hereafter).

The remote station contains a file in the form of a table defining the correspondence between the system serial number and the type of maintenance contract.

F.3.5.2 Verifying the CDA 7 Serial Number

The cabinet serial number is located on the label glued at the top back of the rack.

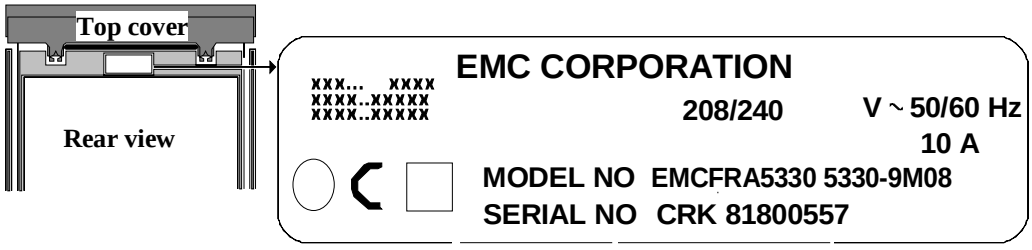


Figure F-10. Cabinet Serial Number

All the information entered in the above screens can be changed at any time by re-selecting **Site Information** in the Main menu.

F.3.6 Setting the Modem Parameters

To set the Modem parameters:

1. Under the **SYMM4** prompt, enter the following command:

   ```
   C:\SYMM4> scsetup
   ```

   The following dialog box is displayed.

SymmCom	Target Configuration
Modem	**Multitech MULTIMODEM**
Comm Port	**COM (3F8 hex- IRQ4)**
Port Rate	**19200**
Connectivity	**Allowed**
Encryption	**OFF**
Call Back disabled	
Prefix if any to access an outide line	
Generate Configuration	**Y**

Is Symmetrix attached to an Ethernet LAN for use as its communication mode ? (Y/N)

Figure F-11. Modem Parameter Setting

2. At first installation, change the password. This password is generally G70xxx, where xxx are the three last digits of the serial number of the CDA 7 subsystem.
3. Answer **N** to the first message: CDA 7 5330 is not attached to an Ethernet LAN. The **Make a Model** window is displayed.
4. Enter **N**. Successive dialog boxes are displayed.

5. To enter the values of the parameters displayed in the above table, answer to these dialog boxes as follows:

Modem	Multitech MULTIMODEM
Comm Port	COM2 (2F8 hex.)
Port Rate	9600
Connectivity	Allowed
Password Change	Enter G7xxx.
Encryption	OFF
Call Back disabled	Press Enter.
Prefix if any to access an outside line	Press Enter.
Generate Configuration	Y

   After the last message, you automatically go back to the DOS prompt.

6. To display the **Symm4 Main window**, enter the `loop` command.
7. Reboot the PC to validate the parameters you have set.

F.3.7 Verifying the CDA 7 Configuration

Bull has defined a number of standard models, for which the configuration (number of disks, number of DIRECTORS, etc.) is precisely determined.

In order to initialize the subsystem correctly, the PC must contain a file describing the installed configuration; it is obvious that this file describes one of the standard configurations (or basic models) specified in Bull/EMC agreements.

This file is called IMPL.BIN in directory C:\SYMM4

In order to proceed this "Automatic Install" command, the PC disk must contain the IMPL.BIN corresponding to the delivered configuration. The name of the binary file is given in the configuration descriptions in:

- Appendix D, *Software Release and CDA 7 Configurations (18 GB Disks for 5330 and 5630)*, or
- Check with your Bull Competence Center.

F.3.7.1 List of Available BIN Files

For the list of available BIN files:

System with 18 GB disks See paragraph D.2 (Appendix D).

F.3.7.2 Modifying the Configuration

If the configuration is incorrect, you can ask the Bull Competence Center:

- To download a new configuration file.
- If present on site, to load the configuration file from a standard configuration diskette.

If necessary, copy the file under MS-DOS using the following procedure:

1. Press Escape to exit from the main menu. The C:\SYMM4 prompt is displayed.
2. Rename the IMPL.Bin file as IMPL.Old.
3. Copy the IMPL.Bin file.
4. Return to the main menu:

   ```
   C:\SYMM4 > LOOP
   ```

F.3.7.3 Running Automatic Installation

To run the Automatic Installation:

1. Highlight the **AUTOMATIC INSTALL** option in the Main menu or enter **B**.

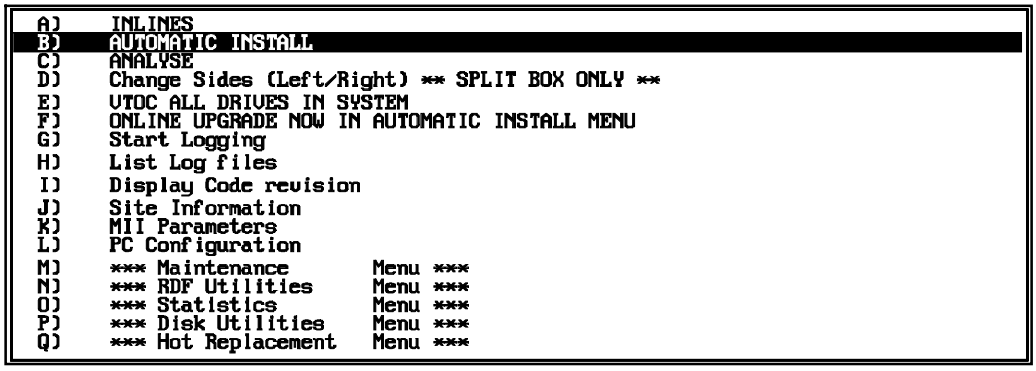
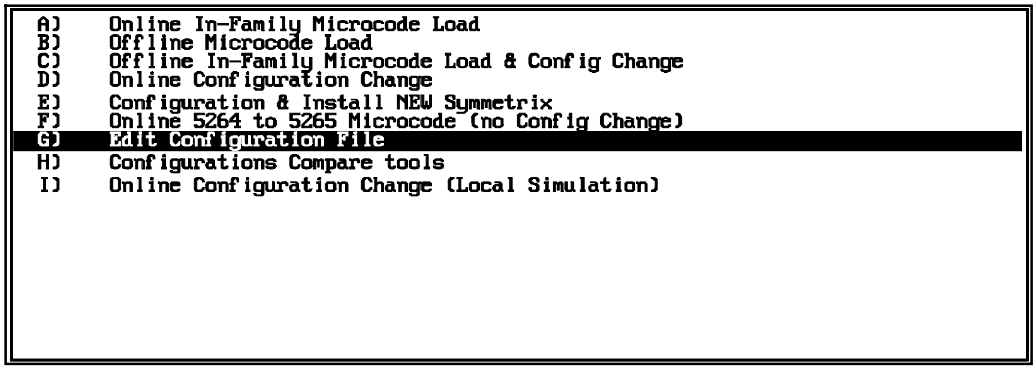


Figure F-12. The Automatic Install Command

A sequence of screens is displayed.

- In each screen, press the **up/down/right/left** keys to highlight your choice.
- Press **Enter** to validate the highlighted parameter and go to the next line or next screen.

Select **Edit Configuration File** or press **G**.



The following automatic installation screens are displayed:

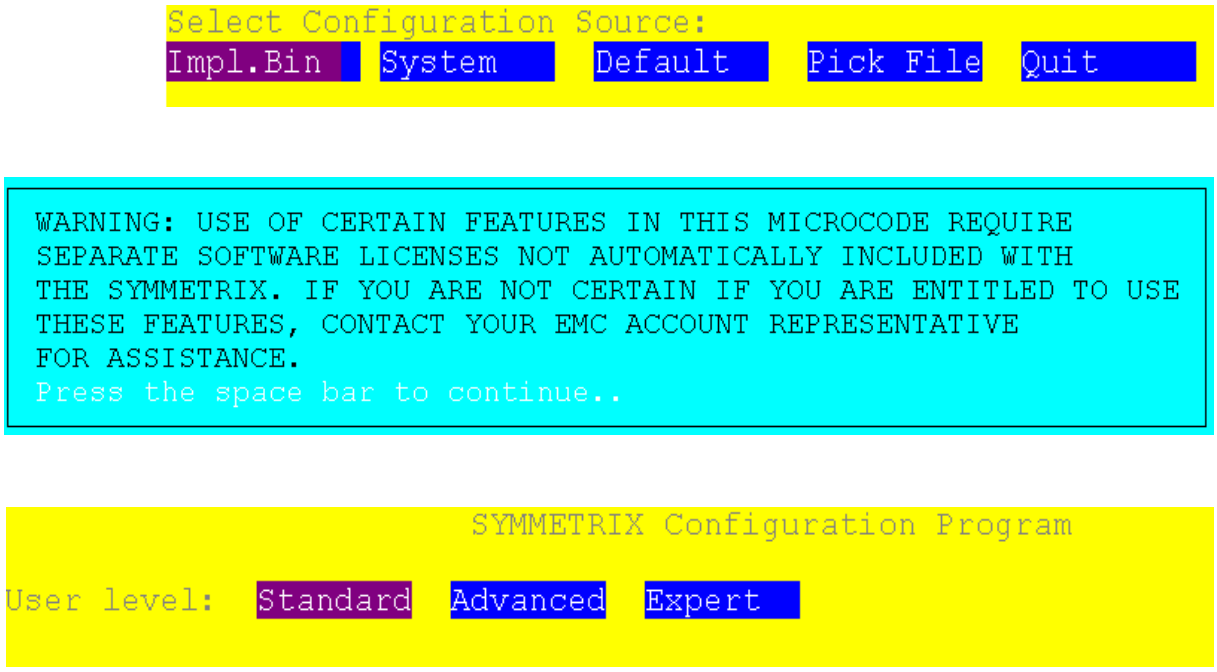


Figure F-13. Automatic Install Screens

2. Select **Impl.bin** and, after the Warning screen, press the space bar, then select **Standard**. The PC reads the IMPL.BIN file from disk.

   – If you choose **System**, the configuration is read from the installed hardware.

   – If it is the first installation of your CDA 7, the procedure terminates by a request to format the subsystem disks.

   The current configuration is displayed:

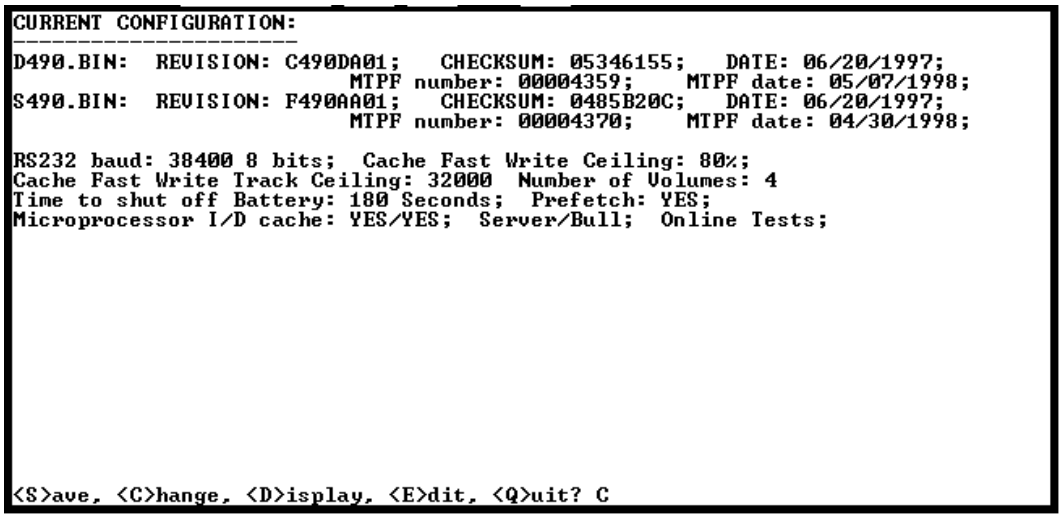


Figure F-14. Current Configuration

3. Press Enter to accept the default choice, Change.

   Complete the following screens as necessary.

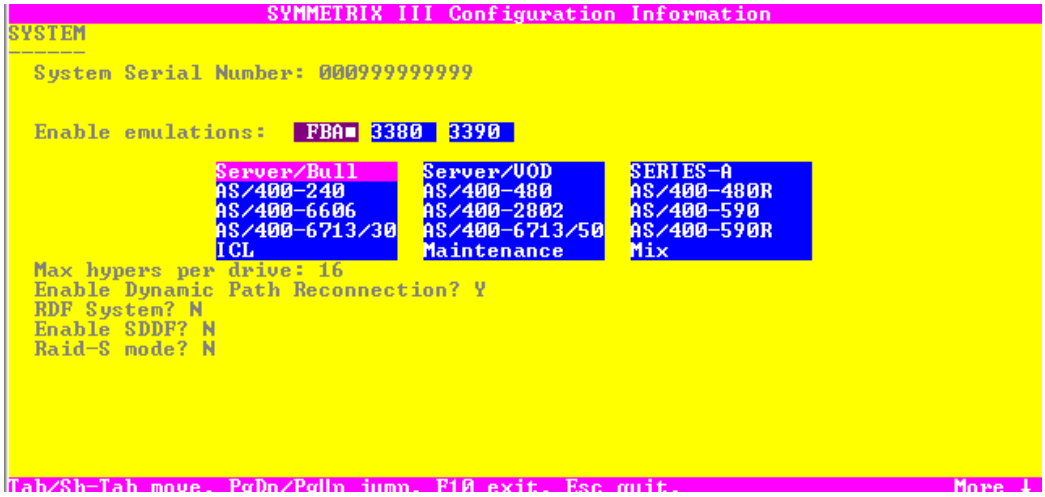


Figure F-15. Installation Dialog (1/3)

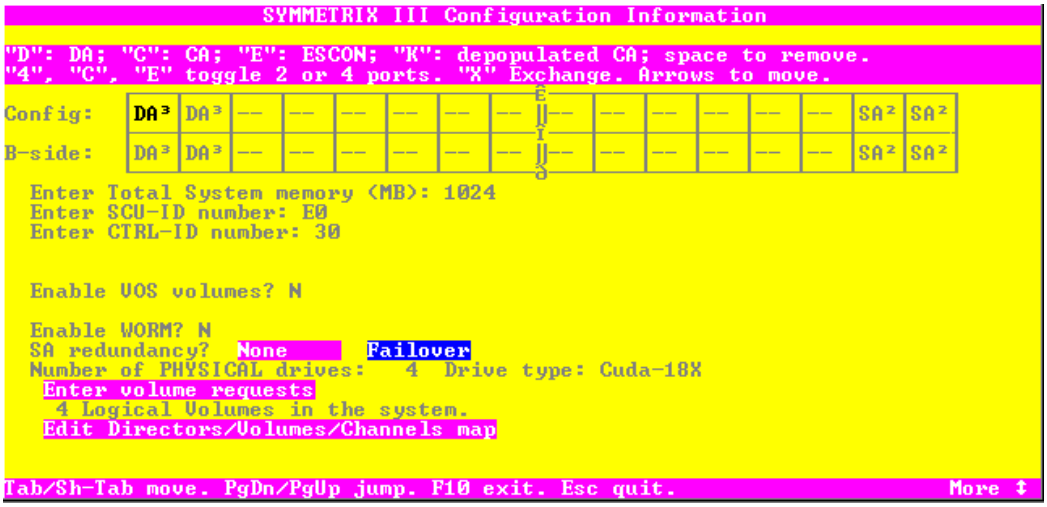


Figure F-15. Installation Dialog (2/3)

Figure F-15. Installation Dialog (3/3)

When the configuration details are correct, press F10 to return to the Current Configuration screen.

Type S for Save and press Enter.

Now that the IMPL.BIN file is correct , you can go on and select the "LOAD" command (option C "Load & Config Change, page F-19).

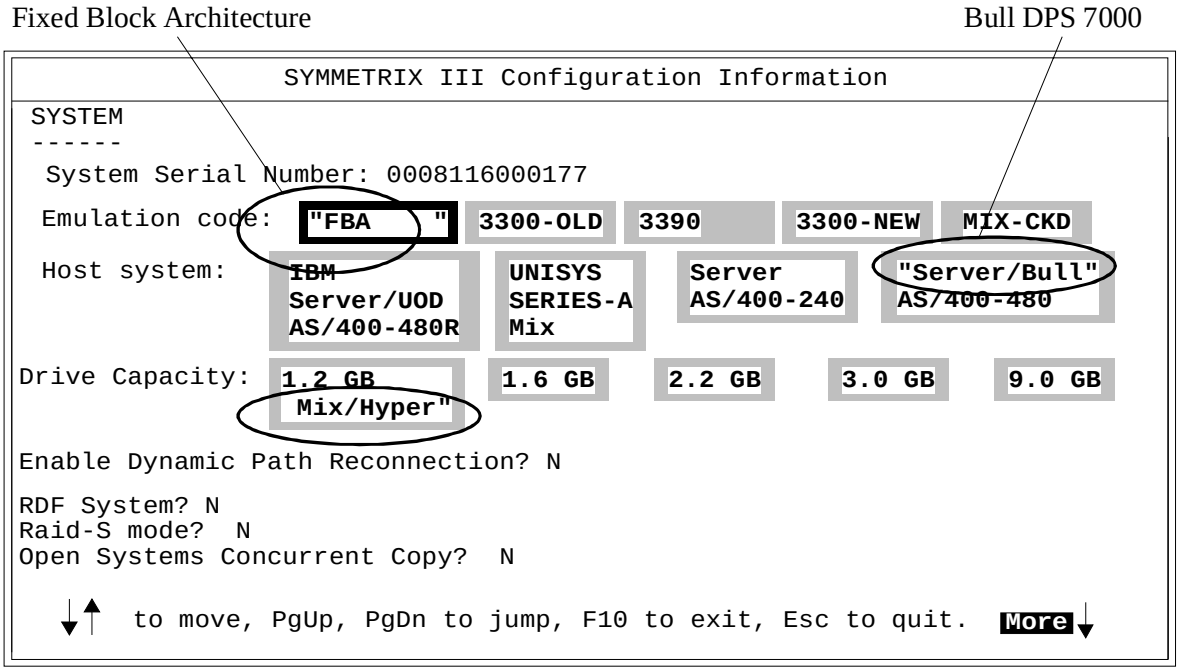


Figure F-16. The Change Command - 1

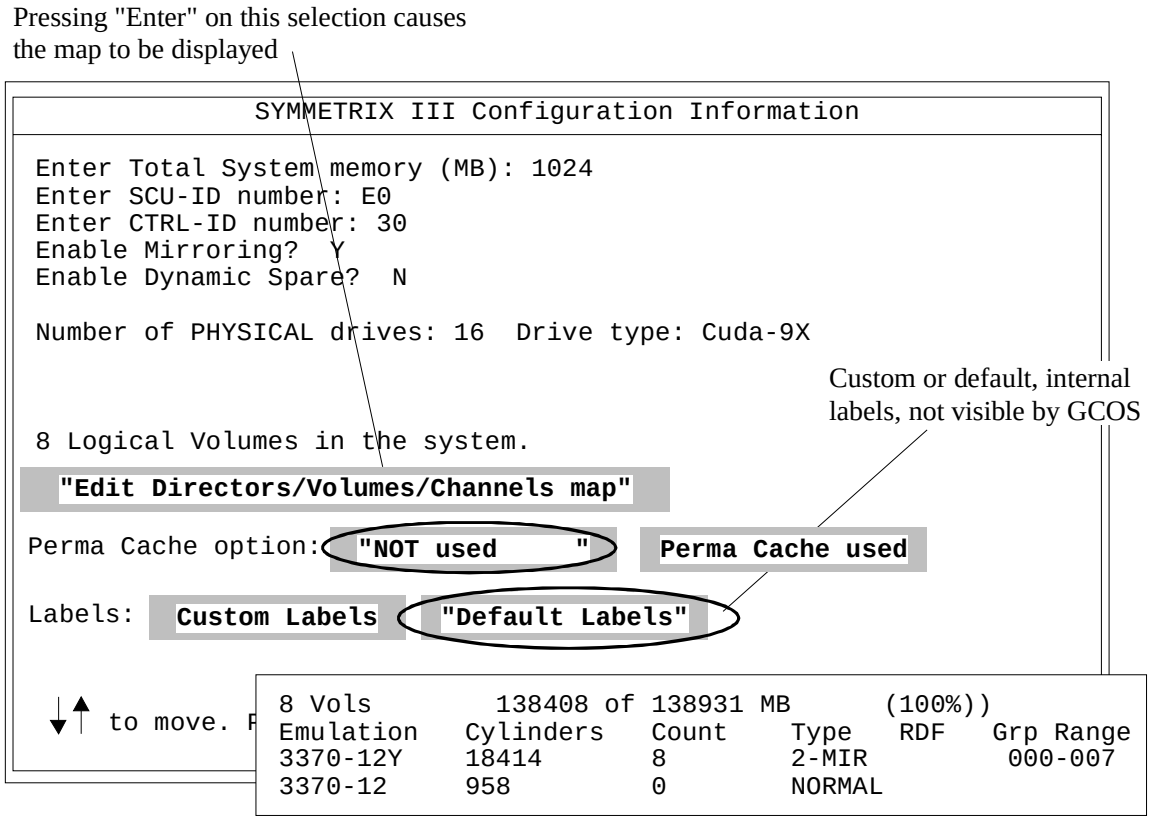


Figure F-17. The Change Command - 2

Highlight the **Edit Directors/Volumes/Channels map** option, and then press **Enter**. A screen displays the distribution of volumes as shown in the figure hereabove.

The following screen contains a representation of physical disks and access channels.

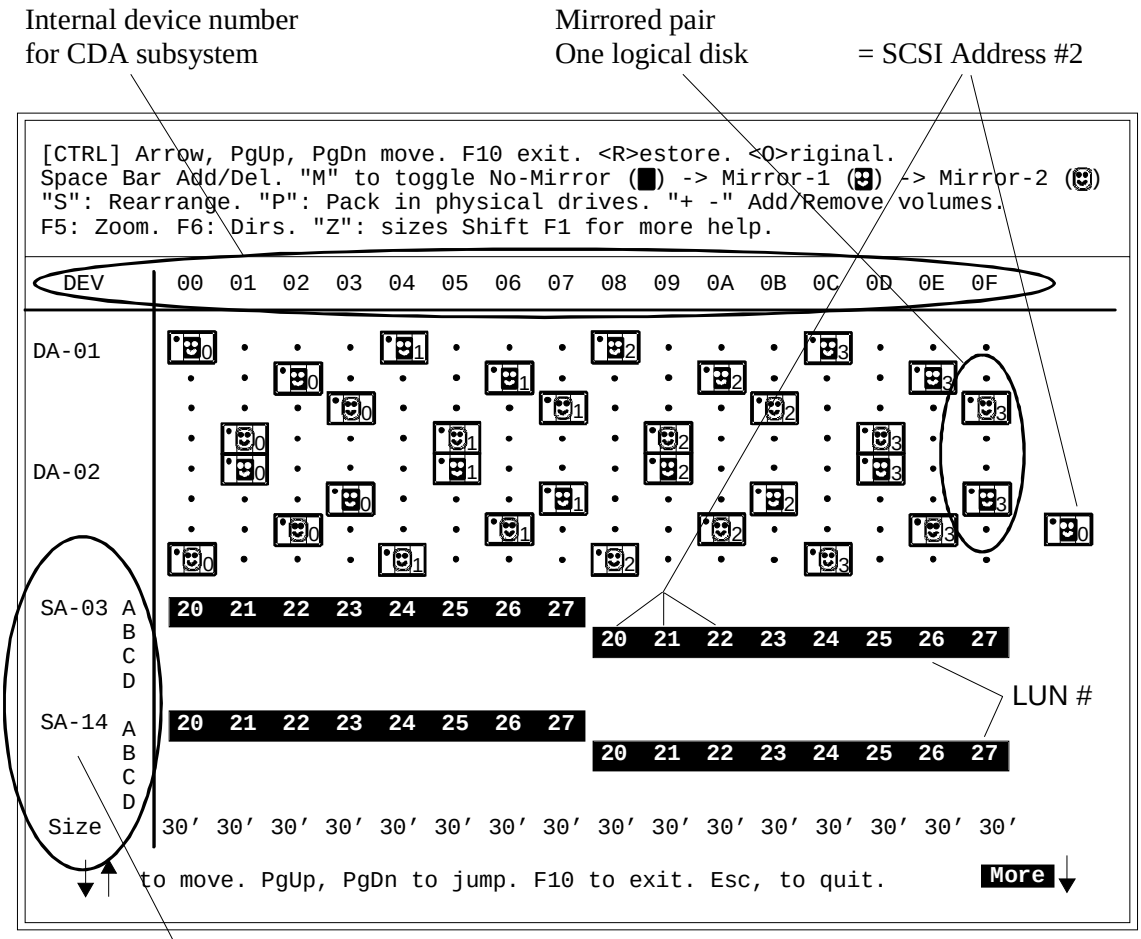


Figure F-18. The Change Command - 3

This shows a system with 32 Mirrored disks, that is 16 logical units (this configuration does not necessarily correspond to a delivered configuration).

Note the SCSI address of each disk on its bus, at the top right of each ideogram.

Documentation about possible commands and symbols used is displayed in the upper part of the screen (Non-mirror, primary or secondary disks).

You can remove a resource (a disk), or modify its status. These commands will be used by the Bull Competence Center if the disk configuration is changed.

The lower part of the screen shows the distribution of logical units per channel.

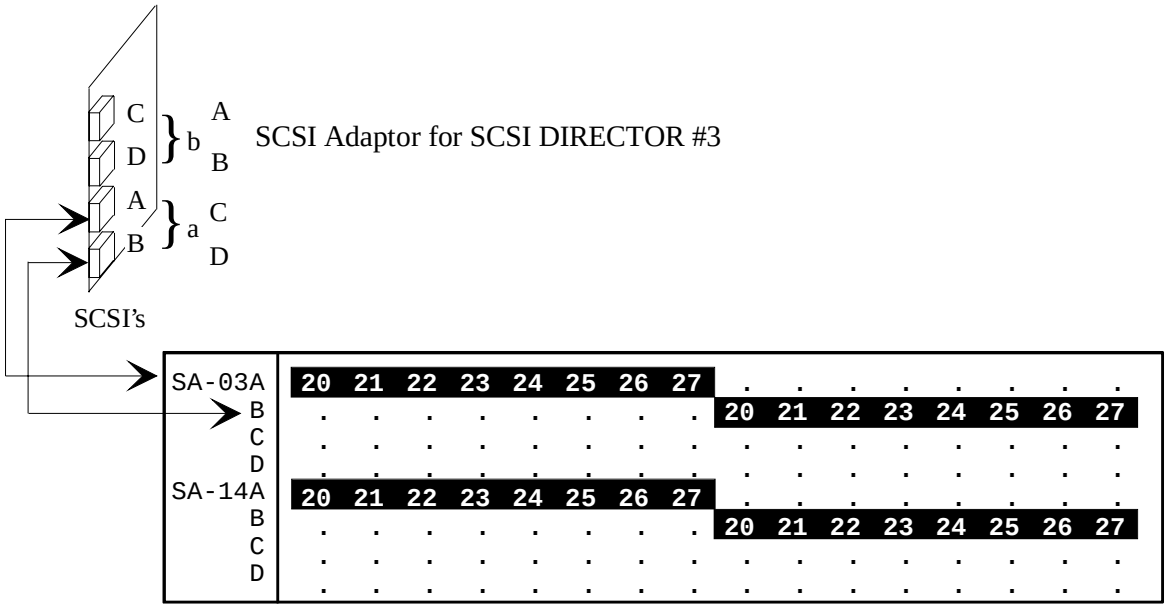


Figure F-19. Distribution of Logical Units

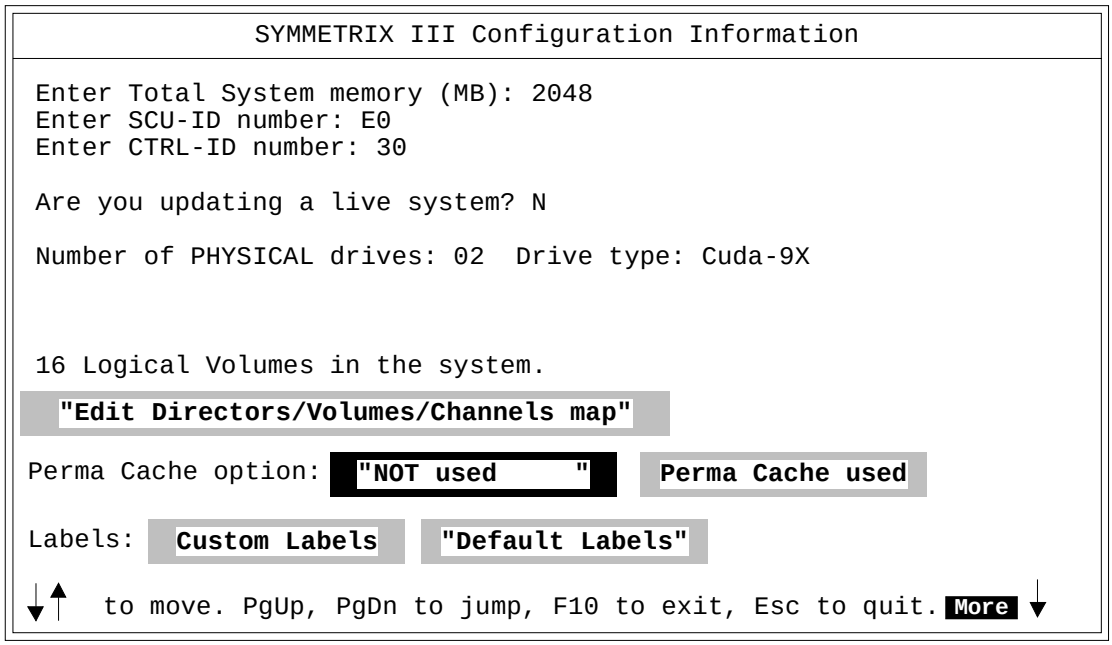
The final part of the screen shows the wiring of the 16 logical units in the subsystem.

1. Press **F10**. The following message is displayed:

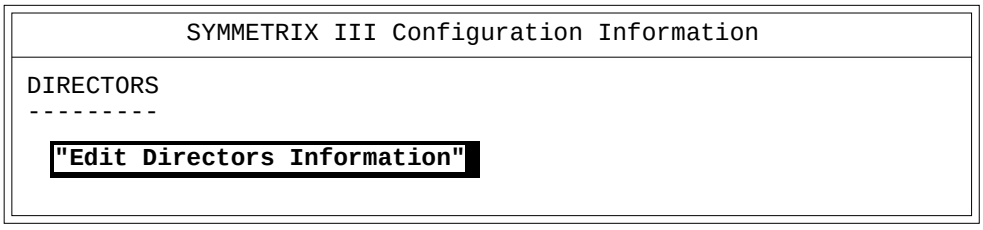
   Channel interface has no active volumes.
   Proceed any way ?

2. Enter **Y**. A dialog box is displayed and asks for a password.
3. Enter the password. This returns the last screen but one, with the cursor positioned on the **Permacache** option.

   The maximum value of the **Number of PHYSICAL drives** is 08.



4. Select the **Default labels** option. This label is internal to the system, of the type SYM000, SYM001, SYM003, etc ., and not visible to GCOS.
5. Press **Enter**. The following screen is displayed.



6. To display information about DIRECTORS, press **Enter**. The following table shows the Director information.

DA-01a						
DA-02a	T ■	L ■	Y ■	W ■	S ■	E ■
	T ■	L ■		W ■	S ■	E ■
SA-15a	T ■	L ■		W ■	S ■	E ■
	T ■	L ■		W ■	S ■	E ■
SA-15b	T ■	L ■		W ■	S ■	E ■
	T ■	L ■		W ■	S ■	E ■
SA-16a	T ■	L ■		W ■	S ■	E ■
	T ■	L ■		W ■	S ■	E ■
SA-16b	T ■	L ■		W ■	S ■	E ■
	T ■	L ■		W ■	S ■	E ■

END OF TABLE

NOTES:

1. Parameters have a black or green square to show whether they are validated or not. Use the space bar to toggle the selections.
2. The correct parameters are validated by loading the binary file but you need to check in the event of replacement of SCSI directors.

Remember that the MNCONF "LABEL" command will give almost the same layout showing the distribution of disks on each SCSI channel, for cabling the subsystem and the name of the binfile.

1. Press **F10**. A dialog box is displayed.
2. Enter the password and the first screen in which you selected **Change** reappears.

```
CURRENT CONFIGURATION:
----------------------
DA Code:     REVISION: CC73DA01; CHECKSUM: 01EF2E96: DATE: 01/27/1995
             MTPF number: 000059C1; MTPF date: 07/06/1995;
SA Code:     REVISION: FB73AA01; CHECKSUM: 018DCCBC: DATE: 01/27/1995
             MTPF number: 000059C7; MTPF date: 07/06/1995;
RS232 baud: 33400 8 bits; Cache Fast Write Ceiling: 80%;
Emulation: FBA:Mix; Time to shut off Battery: 120 Seconds; Mirroring: YES;
Prefetch: Dynamic Spare: NO; Microprocessor I/O cache: YES/YES;
Server/Bull: Online Tests;

<L>oad, <S>ave, <B>oth, <C>hange, <D>isplay, <A>dvanced, <Q>uit? C
```

3. Select **Both** (Save and Load). The dialog box asking for the password is displayed.

   You save the configuration with any changes you have made on the PC disk, and load the MICROCODE in DIRECTORS.

4. To format the disk-drives, go to the main menu and select **VTOC ALL DRIVES IN SYSTEM** or enter **E**. Depending on the configuration, this operation will take some time (about 20 minutes).

   At the end of this operation your system is initialized and loaded, but the DIRECTORS are still **disable**.

5. Under MS-DOS, save the IMPL.BIN and SITEINFO.DAT files onto a diskette. Keep this diskette carefully as a backup.

To do this:

1. Press **Escape** to exit the main menu.
2. Confirm your request. The C:\SYMM4 prompt is displayed.
3. Insert the diskette.
4. Enter the following command:

   ```
   C:\SYMM4 > COPY C:\SYMM4\IMPL.BIN A:\<goodfile.bin>
   ```

5. Return to the main menu with the command:

   ```
   C:\SYMM4 > LOOP
   ```

F.3.8 Declaring the CDA 7 Subsystem under GCOS 7

The version of FGF supporting CDA 7 subsystem does not have any new commands for management of these subassemblies.

F.3.8.1 Global Method

Firstly, you should be aware that if MSC4 subsystems are present in the configuration, MNCONF will assign slots occupied by the PxM cards to WSP cards, and that substitution will be compulsory.

LSS subsystems (and channels and disk external identifiers) will not be assigned.

Other PRM or NCC7 type cards may be moved.

The procedure is as follows:

1. Starting from the running configuration (CONFIG_OLD), execute a MODIFY command under MNCONF and add CDA subsystems to create a new configuration (CONFIG_NEW), based on the original configuration.

   The result of this operation gives:

   – The future slots for WSP cards.
   – The list of IOM cards to be removed so that WSP cards can be installed.
2. In the new configuration, CONFIG_NEW, use the "IOM" command to look for possible slots for cards which were removed in the previous step.
3. In CONFIG_OLD, execute one or more MOVE commands to the slots found in step 2, for the IOMs deleted in step 1, in order to make room to install the WSP cards. At the end of this step, a configuration will be created which may be called CONFIG_TEMPRY and which will contain the necessary free slots.

4. In CONFIG_TEMPRY, execute a MODIFY command to insert WSP cards supporting CDA subsystems.

This creates the final configuration, for example named CONFIG_MYCDA.

F.3.8.2 Declaring the CDA 7 Subsystems

Non-coupled system

Definition: a "physical group" of disks always contains 8 mirror disks or 4 RAID-S disks.

The following is a standard declaration of a configuration containing 8 physical disks.

```
(1) N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :
      CDA #01
      Number of 4-disk physical groups RAID-S
                        (0)                        :
      Number of 8-disk physical groups MIRROR
                        (1 )                       :1
    -> Generated MS external names:
(2)     Gr1 (01 02 03 04)
      CDA #02
      Present?          (0)                        :
    --> Generated WSP-R IOMs (CDA7):
(3)   Iom WSP-R slot 15 PX43
       Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
      Do you confirm (Y, N or / for exit)? (Y)     :Y
(4) *** previous iom PSM   slot 06 PX43 is lost
N:
```

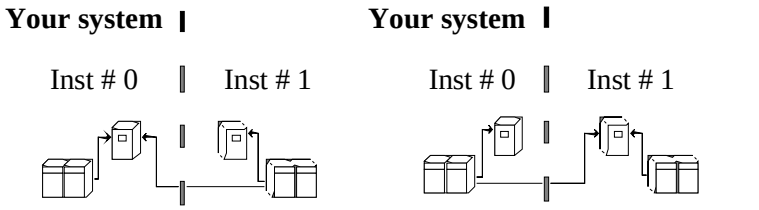
NOTE:
Number of 4-disk physical group RAID-S is always positionned at 0.

Coupled systems

For a coupled system, answer "1" to the second question in the following sequence:

```
 N: MD OLD NEWCDA CDA7
    CDA7
      CDA7 present?     (0)                        :1
      Some Grx will be defined in function of its nb of 8-disk
      physical groups
      One Gr correlates with CDA Scsi Adaptator
      Coupled?          (0)                        :1
.........etc .....
```

Coupling refers to both of the following possibilities:



From inst # 1 to "myinstall" From "myinstall" to install # 1

NOTE:

Cabinets that are accessed by two installations are incorrectly called "4 path" since each installation can have only two paths.

First case: your system is accessed by installation #1

```
N: MD OLD NEWCDA CDA7
   CDA7
     CDA7 present?     (0)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 4-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :1
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (0 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
      Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04
      port 0,coupled
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Second case: your system accesses installation #1 :

```
N: MD TEMPCDA REMPCDA1 CDA7
   CDA7
     CDA7 present?     (1)                        :
     Some Grx will be defined in function of its nb of 8-disk
     physical groups
     One Gr correlates with CDA Scsi Adaptator
     Coupled?          (0)                        :1
     With AURIGA?      (1)                        :
     Instal # <0 or 1> (0)                        :
     CDA #01
     Present?          (1)                        :
     Number of 4-disk physical groups RAID-S
                       (0 )                       :
     Number of 8-disk physical groups MIRROR
                       (1 )                       :
   -> Generated MS external names:
       Gr1 (01 02 03 04)
     GR1 coupled?      (0)                        :
     CDA #02
     Present?          (0)                        :
     Possible nb coupled LCs belong to another syst (4 up to 48 )
     CDA #01 other instal.
     Coupled?          (0)                        :1
     Number of coupled LCs for Gr1
                       (0 )                       :8
     Number of coupled LCs for Gr2
                       (0 )                       :
   -> Generated MS external names:
       Gr1 (YQ YR YS YT YU YV YW YX)
     Other CDA?        (0)                        :
   --> Generated WSP-R IOMs (CDA7):
     Iom WSP-R slot 15 PX43
      Port 0 cab #01 Gr #1 linked to WSP-R PX54 slot 04 port 0
     Iom WSP-R slot 12 PX40
      Port 0 cab #01 Gr #1 linked to WSP-R PX57 slot 01
      port 0,other
     Do you confirm (Y, N or / for exit)? (Y)    :
N:
```

Special case of the NCC card

The NCC7 card occupies two slots, therefore there must be two consecutive free slots.

There you may need to do an additional "MOVE" to release a second slot.

F.3.8.3 Running the LABEL Command

NOTE:
See the figure in chapter 1 for the location of SCSI adapters and port assignments.

The LABEL command has been modified to support CDA 7 subsystems.

It clearly and unambiguously gives From/To information for SCSI cables between IOSS and the CDA 7 cabinet.

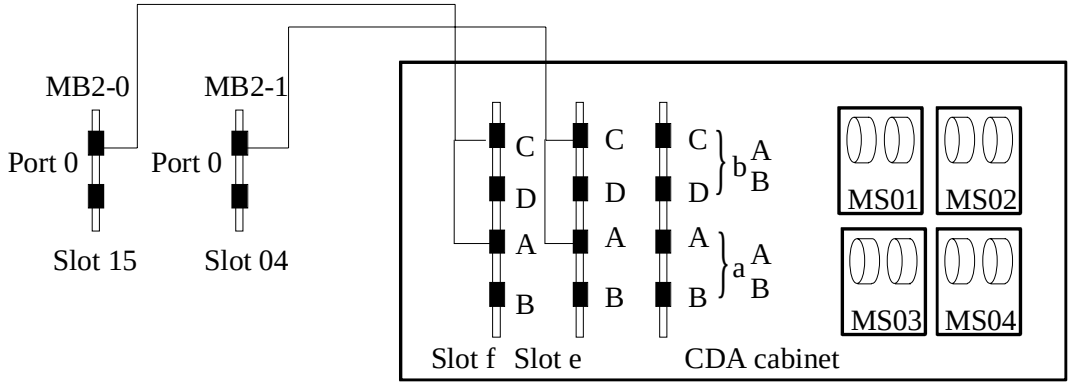
EXAMPLE 1 WITHOUT COUPLING:

Configuration: 8 mirrored disks = 4 logical volumes

```
*** LABELS and CDA7 connections: MYCDA ***

Iom WSP-R slot 15 PX43
 port 0 connected to Scsi Adaptor slot f port A cda #01
Iom WSP-R slot 04 PX14
 port 0 connected to Scsi Adaptor slot e port A cda #01

*MB2-0-15-2  *   *MC01 SA f-A  *   *MB2-1-04-2  *   *MC21 SA e-A
*            *   *MS01         *   *MS02        *   *MS03        *   *MS04
```

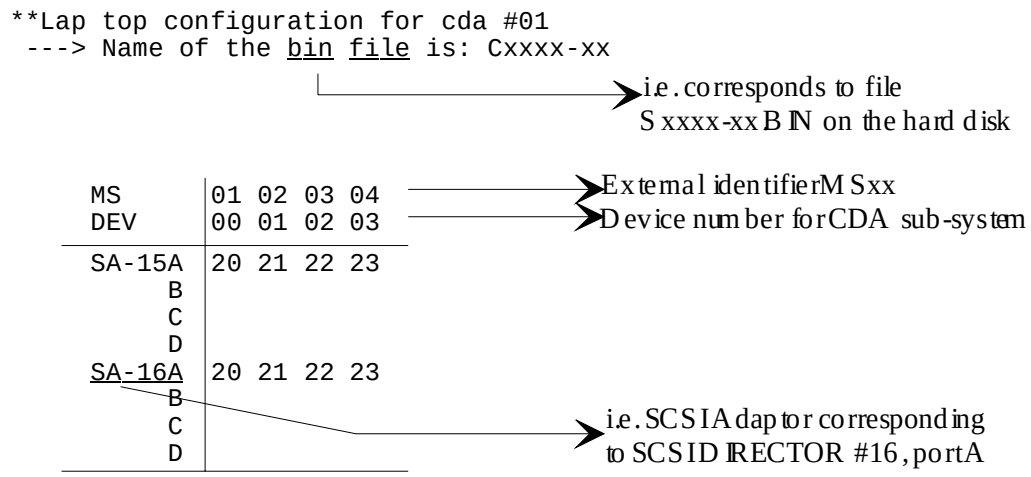
Controller name

Slot #
MB2 #
Port
Slot
SCSI Adapter



❑

EXAMPLE 2 DISK CONFIGURATION ON LAP-TOP:



❑

The file name Dxxxx-xx.BIN must correspond to one of the typical configurations.

The active file IMPL.BIN in the PC must be identical.

CAUTION:

The information that you note is the only unambiguous record of the correspondence between external identifiers of logical disk units (MS), seen from GCOS, and physical disk drives (DEV) seen from the CDA 7 cabinet Lap-Top.

You must keep a copy of this document and send another copy to the Bull Competence Center.

EXAMPLE 3 WITH COUPLING:

This is a configuration of 16 mirrored disks belonging to a cabinet in another installation. The connection of the coupled disks is shown in the label of System 0.

```
   Iom WSP-R slot 19 PX47
    port 0 connected to Scsi Adaptor slot 0 port D cda #01 other instal
   Iom WSP-R slot 08 PX10
    port 0 connected to Scsi Adaptor slot 2 port D cda #01 other instal

From              To
   *MB2-0-19-2  *  *MC1M SA d-DA  *  *MB2-1-08-2   *  *MC3M SA 2-D
   *inst #0     *  *inst #1       *  *inst #0      *  *inst #1
   *            *  *MS YH         *  *MS YI        *  *MS YJ          *  *MS YK
   *            *  *MSYL          *  *MS YM        *  *MS YN          *  *MSYP
                                                          External identifier
```

The Port switches on the SCSI adapters must be set to Enable and Termpower must be set to VCC. See *Rear Card Cage - SCSI Adapter Switch Positions* in the *Introduction* which is also followed by information on the correct way of connecting the cables (figure *SCSI Cable Connection*.)

❑

Glossary

This glossary contains terms related to disk storage subsystems. Many of these terms are used in this manual.

C

CA
Channel Adapter

CD
Channel Director

CDA
Cache Disk Array

COM
Communication (card)

D

DA
Disk Adapter (=Disk Director)

DASD
Disk Access Storage Device

DD
Disk Director

E

ECC
Error Checking and Correction

EIP
Enterprise Information Processing

EPO
Emergency Power Off

ESCON
Enterprise System Connection

ESDS
Enterprise Storage Disk Subsystem

IMPL
Initial Microcode Program Loading

L

LRC
Longitude Redundancy Code

LUN
Logical Unit Number

Midplane
Two sided backpanel

N

NVRAM
Non Volatile RAM

P

PCB
Printed Circuit Board

PCD
Parallel Channel Director

PDM
Power Distribution Module

PDU
Power Distribution Unit

S

SA
SCSI Adapter

SCD
Serial Channel Director

SCSI
Small Computer Channel Interface

SD
SCSI Director

W

WSP
Wide SCSI Processor

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